

## Chapter 2 Chon Buri Pilot Project

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### Background of the Pilot Project

In Thailand, there are eight automobile assembly manufacturers (assemblers), which are located as follows:

#### Automobile Assembly Manufacturers and Factory Locations

Automobile Assembly Manufacturers	Factory Locations
Toyota	Samut Prakan, Chechaengsao
Isuzu	Samut Prakan
Siam Nissan	Samut Prakan
Honda	Ayutaya
Mitsubishi	Bangkok, Chon Buri
GM	Rayong
Autoalliance (Ford, Mazda)	Rayong
BMW	Rayong

Chon Buri, which has only one auto assembly plant (Mitsubishi's second plant in the Eastern Seaboard Industrial Estate), is characterized by proximity to other assemblers, except for Honda in Ayutaya, which are located within a 60 – 70km range. Foreign-affiliated suppliers are also located near each assembler. Chon Buri and assembly plants are connected by well-developed road networks, allowing delivery of parts in one-to-two hours.

In Chon Buri, there are approximately 80 automotive suppliers, of which 17 are local SMEs. Four local suppliers are located within industrial estates. Chon Buri is known to have a number of industrial estates, including Amata Nakorn that is one of the largest industrial estates in the country, where many of foreign-affiliated suppliers are operating. Industrial estates in Chon Buri and Rayong attract foreign suppliers operating in the suburbs of Bangkok because of their well-developed infrastructure, as well as foreign suppliers who newly invest in Thailand.

Main issues facing the automotive parts cluster in Chon Buri are summarized as follows:

- 1) It is difficult for local SMEs to adapt themselves to the development of and the changes in the automobile industry and ensure sustainable growth.
- 2) It is also difficult to establish an effective linkage with their potential customers, namely foreign assemblers operating in large industrial estates.

- 3) The cluster development network for local automotive suppliers is not sufficiently developed to promote the objective, while foreign companies that are expected to serve as the core of such network are not necessarily interested in the cluster development activity.
- 4) Offices of BDS, which is an organization to support the automobile industry, are concentrated in the Bangkok area, including Samut Prakan, and are not very convenient for suppliers in Chon Buri to use.
- 5) While Chon Buri is accessible to all assemblers, it is not very close to any of them and does not offer a locational advantage over some provinces.

## **2.1 Outline of the Pilot Project**

### **2.1.1 Project Name**

(See Table 2.1-1 "Name of Pilot Project".)

Establishment of BDS facilitator for cluster networking:

### **2.1.2 Project Purpose**

(See Table 2.1-1 "Project Purpose".)

The primary purpose of the pilot project is to develop the BDS network led by IPC9 for the purpose of promoting the automotive parts cluster in Chon Buri, eventually reinforcing the BDS facilitator's ability and network. It should be noted, however, that suppliers of machine parts, including industrial machinery, are included in the cluster development project, for the number of local automotive parts suppliers is fairly limited and has not reached critical mass to make the project viable.

### **2.1.3 Expected Benefits from the Pilot Project**

(See Table 2.1-1 "Output".)

1. Organization for cluster promotion is structured in the region.
2. IPC9 is equipped with capability as a facilitator for the cluster.
3. Training courses are held for successors of the cluster and young entrepreneurs.
4. Functions of IPC9 in collection and distribution of information is improved.
5. Joint projects among enterprises, academies and governments take root in the region.
6. A foster parent program is proposed to large scale companies.

**Table 2.1-1 Project Design Matrix (PDM) - Chon Buri Automobile/Machinery Parts Industry**

**Name of Pilot Project:** Establishment of BDS facilitator for cluster networking  
**Target Group:** Thai SMEs engaged in automobile and machinery parts industry in Chon Buri  
**BDS Facilitator/Provider:** IPC 9  
**Period of the Project:** August 2004 - February 2005

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><b>Overall Goal</b></p> <p>Capacity and network of BDS providers are strengthened.</p>	<p>* Beneficiaries of BDS providers increase to double within 5 years.</p>	<p>1. Records of services of BDS providers filed in IPC 9</p>	
<p><b>Project Purpose</b></p> <p>IPC9 functions as a BDS facilitator of the target group</p>	<p>* IPC 9 financially and technically supports five or more BDS providers serving</p>	<p>1. Post evaluation survey and interview to IPC 9</p>	<p>1. The number of BDS providers for the cluster does not decrease by an economical deterioration, etc.</p>
<p><b>Output</b></p> <ol style="list-style-type: none"> <li>1. Organization for cluster promotion is structured in the region.</li> <li>2. IPC 9 is equipped with capability as a facilitator for the cluster.</li> <li>3. Training courses are held for successors of the cluster and young entrepreneurs.</li> <li>4. Functions of IPC 9 in collection and distribution of information is improved.</li> <li>5. Joint projects among enterprises, academies and governments take root in the region.</li> <li>6. A foster parent program is proposed to large scale companies.</li> </ol>	<ol style="list-style-type: none"> <li>1. A steering committee</li> <li>2. A specialized division in IPC</li> <li>3. Training courses for successors and young entrepreneurs: - Two times X 15 participants or more</li> <li>4. A website in IPC 9, A mini-library in IPC 9</li> <li>5. A promotion committee Regulation procedure to start joint projects, An on-going joint project</li> <li>6. Talks with large companies</li> </ol>	<ol style="list-style-type: none"> <li>1. Interview to IPC 9 and relating persons in the region.</li> <li>2. Investigation of IPC 9</li> <li>3. Records of the training courses</li> <li>4. Completion of website and mini-library</li> <li>5. Project records</li> <li>6. Meeting memo</li> </ol>	<p>1. The Government does not change the existing policy in administering IPCs.</p>
<p><b>Activities</b></p> <ol style="list-style-type: none"> <li>1-1 Recruit participants in the clustering movement.</li> <li>1-2 Organize a committee to steer the movement.</li> <li>2-1 Set up a division for cluster development in IPC 9.</li> <li>2-2 Train staff of the new division.</li> <li>3-1 Prepare a curriculum and lecturers for the training.</li> <li>3-2 Recruit participants and conduct the training.</li> <li>4-1 Design an ICT system effective for the cluster promotion and appropriate for IPC 9.</li> <li>4-2 Set up a procedure of information collecting and do it.</li> <li>4-3 Prepare a website for releasing information.</li> <li>4-4 Strengthen library services in IPC 9 for the cluster.</li> <li>5-1 Establish a promotion committee for joint projects by initiative of IPC 9.</li> <li>5-2 Institutionalize a business contract to begin joint projects as a common rule.</li> <li>5-3 Select a theme of a joint project by the promotion committee and make an implementation body.</li> <li>5-4 Conduct the selected joint project as a trial.</li> <li>6-1 Offer a foster parent program to large scale companies, which is a preferential 3-year employment of sons or daughters of Thai SMEs.</li> </ol>	<p><b>Input</b></p> <p><u>The JICA mission</u></p> <p>* Japanese experts: Two Japanese experts in temporary assignment for their field work period</p> <p>* Thai ICT expert: One Thai ICT expert who can make websites with databases by a term employment over the project period</p> <p>* Thai Auto-part expert: One auto-part expert who has knowledge about auto-part industry by temporary employment.</p> <p>* Thai secretary: One Thai secretary in a term assignment over the project period</p> <p>* Thai interpreter: One Thai-Japanese interpreter in temporary assignment only during the field works of Japanese experts.</p> <p>* Operating expenses:</p> <ul style="list-style-type: none"> <li>- Employment costs of the above Thai persons</li> <li>- Transportation and accommodation for the Japanese experts and Thai persons above</li> <li>- Expenses of training, meetings, workshops, etc.</li> <li>- Costs of instructors in training courses</li> </ul> <p><u>Thai counterparts</u></p> <p>* Counter personnel (DIP including IPCs)</p> <p>* Office space, office equipment and stationeries</p> <p>* Operating expenses:</p> <ul style="list-style-type: none"> <li>- Administrative and management costs of the pilot project</li> <li>- Transportation and accommodation for business trips to Chon Buri</li> <li>- The training facilities</li> <li>- Expenses of seminars, meetings, workshops, etc.</li> </ul>	<p>1. DIP and/or IPC 9 do not change the policy to promote the cluster.</p> <p><b>Pre-conditions</b></p> <ol style="list-style-type: none"> <li>1. A working group for the pilot project is organized in the area.</li> <li>2. Participants join the pilot project in adequate number.</li> </ol>	

## 2.1.4 Description of Activities under the Pilot Project

(See Table 2.1-1 "Activities".)

- 1-1 Recruit participants in the clustering movement.
- 1-2 Organize a committee to steer the movement.
  
- 2-1 Set up a division for cluster development in IPC 9.
- 2-2 Train staff of the new division.
  
- 3-1 Prepare a curriculum and lecturers for the training.
- 3-2 Recruit participants and conduct the training.
  
- 4-1 Design an ICT system effective for the cluster promotion and appropriate for IPC 9.
- 4-2 Set up a procedure of information collecting and do it.
- 4-3 Prepare a website for releasing information.
- 4-4 Strengthen library services in IPC 9 for the cluster.
  
- 5-1 Establish a promotion committee for joint projects by initiative of IPC 9.
- 5-2 Institutionalize a business contract to begin joint projects as a common rule.
- 5-3 Select a theme of a joint project by the promotion committee and make an implementation body.
- 5-4 Conduct the selected joint project as a trial.
  
- 6-1 Offer a foster parent program to large scale companies, which is a preferential 3-year employment of sons or daughters of Thai SMEs.

## 2.1.5 Overall Schedule and Team Configuration

Figure 2.1-1 shows the overall schedule of the pilot project.

The JICA mission consists of the following:

- Mr. Shozo INAKAZU: Team Leader of CSCD
- Mr. Kunio OTSUKA: Cluster Analysis 1
- Mr. Tamon Nagai: Human Resources Development

The JICA mission recruited two Thai coordinators for the pilot project as follows:

- Ms. Onnarin Phuatngam (MAAM): ICT expert
- Ms. Nipawan Meemark (OYE): Auto-parts expert

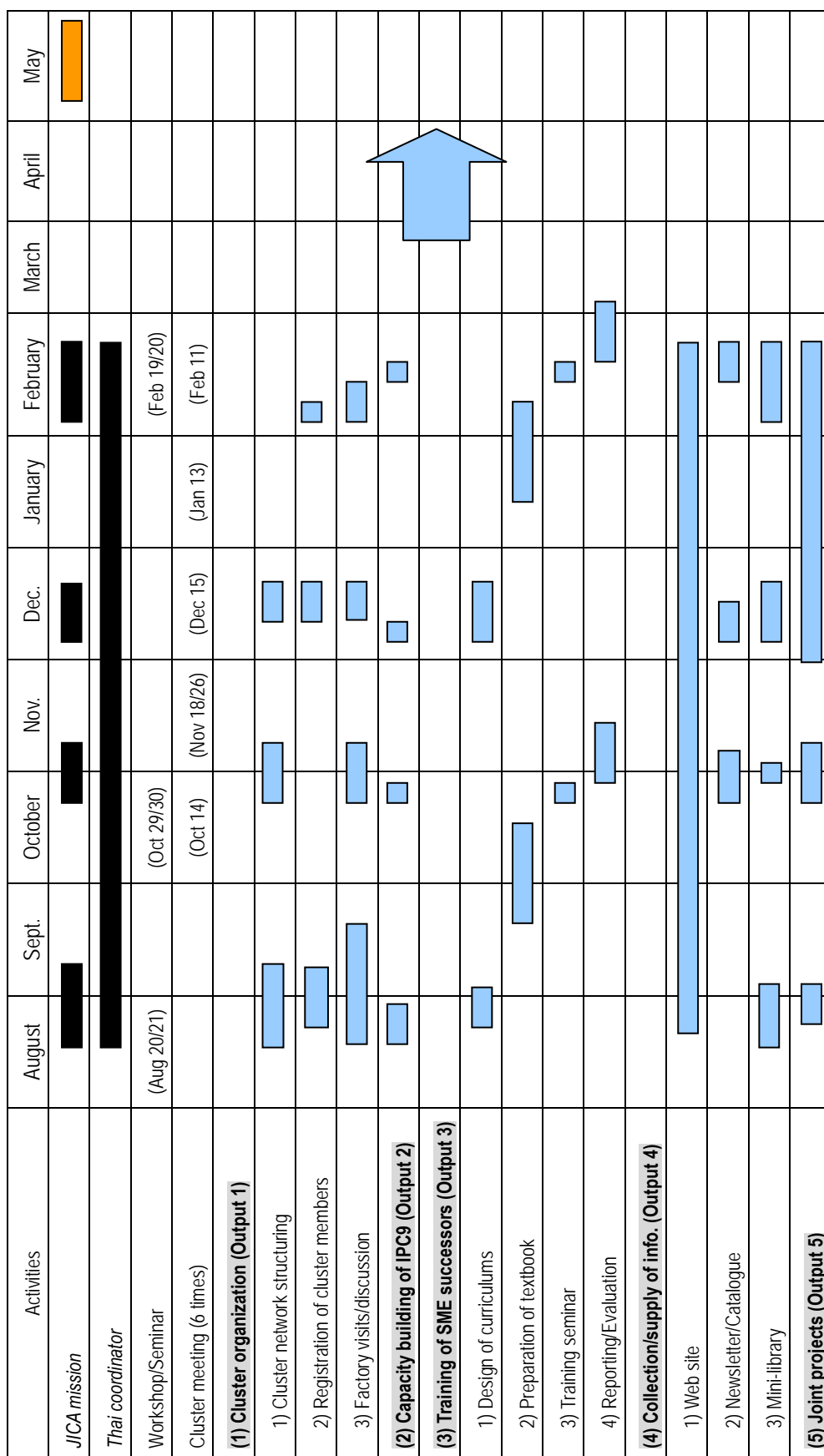


Figure 2.1-1 Overall Schedule of Pilot Project

## 2.2 Performance of the Pilot Project

### 2.2.1 (Output 1) Organization for Cluster Promotion is Structured in the Region.

#### (1) Kick-off and team building workshop

A two-day workshop was held to understand what JICA is doing and for team building of cluster members with 37 participants (See Attachment 2-1 at the end of this chapter). The objectives of the workshop are as follows:

- Presentation on 9 projects proposed in the master plan
- Presentation on the pilot project (PP)
- Team building of PP participants

The participants understood the concept of master plan and PP and it was a good opportunity to know and understand each other. Table 2.2-1 shows the seminar program.

**Table 2.2-1 Kick-off and Team Building Workshop Program for Cluster Development**

<u>August 24, 2004 (Tue)</u>	
9:30-10:00	Opening meeting
10:30-12:00	Review on the scope of implementation under the CSCD Project by the JICA mission <ul style="list-style-type: none"> <li>• Master plan for automotive industry</li> <li>• Selection of the pilot project from the master plan</li> </ul>
13:00-16:00	Group relations activities by Ms. Pornvarin Nutrawong and Mr. Kanthorn Theemaphan <ul style="list-style-type: none"> <li>• Self introduction</li> <li>• Group separation, team working, team's role and its importance</li> <li>• Activity analysis</li> <li>• Role playing activity</li> </ul>
18:00-22:00	Group relations activities (continued)
<u>August 25, 2004 (Wed)</u>	
9:00-10:30	Group relations activities by Ms. Pornvarin Nutrawong and Mr. Kanthorn Theemaphan (continued) <ul style="list-style-type: none"> <li>• Group separation by pilot project</li> <li>• Brainstorming for considering the action plan and determining roles</li> <li>• The functions of teamwork of each project</li> </ul>
12:00-13:00	Summary of the pilot project by JICA expert

(2) Visits of SMEs and BDS providers by the JICA mission (3rd field survey)

The JICA study team had to know first what SMEs and BDS providers do as well as to explain the concept of the pilot project for their cooperation. The following is SMEs, universities, etc. that the JICA study team visited (See attachment 2-2 at the end of this chapter):

SMEs

- BT Autopart: Manufacturing press parts for automobiles etc.
- TMC: Manufacturing hydraulic presses for car/parts manufacturers, materials handling equipment, etc.
- Asia Precision: Manufacturing precise parts for car/parts manufacturers etc.
- Sumota: Manufacturing diesel engines, agro machinery, etc.
- Parts Manufacturing (1999): Manufacturing rubber dumpers and U-bolts for trucks
- Amnuayyon Engineering (VIP Property): Manufacturing overhead cranes etc.

Universities

- Burapha University
- E-TECH
- Thai-Austria Technical College
- Asia University
- Rajamangala Institute of Technology (RIT)

Training Center

- Chon Buri Regional Institute for Skill Development (CRISD)
- Thai-German Institute (TGI)

The JICA mission found the following during the visits:

- There is a difference in level of production technology and production control among SMEs, which wish to narrow it.
- All SMEs and BDS providers have interest in the pilot project activities.
- Universities and colleges wish to make collaboration with industry, but do not know how to do it.

Therefore, the JICA mission is confident that there are strong needs for the pilot project to upgrade the level of cluster members etc.



### (3) Mutual visits to organizations of cluster members (3rd field survey)

The cluster members, who joined the Kick-off and Team Building Workshop, discussed the necessity of mutual group visits of cluster members for better understanding of each other. This is the essential first step for the pilot project activities. They visited the following cluster members during the 3rd field survey and after the 3rd field survey. It should be noted that they decided it by themselves and planned and carried it out by themselves.

- Asia Precision
- BT Autopart
- Sumota
- Parts Manufacturing (1999)
- Amnuayyon Engineering (VIP Property)
- Burapha University
- E-TECH
- Thai-Austria Technical College
- No.3 Training Center, Chon Buri

In particular, Asia Precision and BT Autopart made comprehensive presentation on production management and quality control that they employed to all the members, in addition to the factory tour. It provided useful information for the members in relation to their improvement efforts.

### (4) Formulation of APCB and CAMC

#### 1) Determination of logotype "APCB" (Auto Parts Chon Buri)

The beneficiary of the cluster was mainly SMEs that manufacture auto parts in Chon Buri. Therefore, the cluster was named Auto Parts Chon Buri (APCB in short). Then the logotype of "APCB" was decided for use in materials for public relations such as catalogues, newsletters and Web site. As the APCB activities became known among SMEs in Chon Buri, companies manufacturing parts similar to automotive parts such as parts for agro machinery and motorcycles consulted IPC9 for joining APCB.

#### 2) Determination of logotype "CAMC" (Chon Buri Automotive and Machinery-parts Cluster)

Then the new name of the cluster was determined as "Chon Buri Automotive and Machinery-parts Cluster" (CAMC), because APCB did not reflect the actual members of the cluster. CAMC

Promoting Committee, which was organized in December 2004, decided a new logotype "CAMC".

3) Formal registration to CAMC

In order to confirm the cluster members, IPC9 prepared a written form for admission to CAMC. Since CAMC activities and objectives became widely known and accepted in the region, SMEs of CAMC members increased to 23 companies (as of May 2005) from 8 companies as shown in Table 2.2-2.

**Table 2.2-2 CAMC Member List**

Member	Activity
<SMEs>	
BT Autoparts	Manufacturing press parts for automobiles etc.
Asia Precision	Manufacturing precise parts for car/parts manufacturers etc.
T.M.C. Industrial Co., Ltd.	Manufacturing hydraulic presses for car/parts manufacturers, material handling equipment, etc.
Sumota	Manufacturing diesel engines, agro machinery, etc.
Parts Manufacturing (1999)	Manufacturing rubber dumpers and U-bolts for trucks
Siam C.T.P. Industrial Co., Ltd	Manufacturing car accessories
Amnuayyon Engineering	Manufacturing overhead cranes etc.
Charoenthaweekalek	Steel work etc.
Thai Motor Chain	Manufacturing chain of motorcycles etc.
Kriengkraihakij	Manufacturing stamping parts
Mold Master Manufacturing	Prototype mold manufacturing
Sam T. Industrial Co., Ltd.	Manufacturing radiators
P&P Manufacturing	Manufacturing auto parts and metal furniture
Lak Thong Precision	Manufacturing auto parts by machine tools
P.T. Prayot Tractor	Manufacturing parts of agro machinery
Nawa Korn Metal	Manufacturing cast alloy parts
Newly registered 7 companies	
<BDS providers>	(See Attachment 2-2)
SMEDB	Providing financing service for SMEs
Burapha University	National university with Faculty of Engineering
Thai-Austria Technical College	National vocational college
E-TECH	Private vocational college
Chon Buri Regional Institute for Skill Development (CRISD)	Providing vocational training service
FTI	Federation of Thai Industries, Chon Buri Chapter
ATSME	Association for the Promotion of Thai SME, Chon Buri
PIO	Provincial Industrial Office of Chon Buri
<Facilitator>: IPC9	

## (5) Cluster meeting

Table 2.2-3 summarizes the JICA field surveys and cluster meetings. It is noted that six (6) out of seven (7) cluster meetings (including DENSO plant tour) were held under the leadership of IPC9 when the JICA mission was not in Chon Buri.

**Table 2.2-3 Summary of JICA Field Surveys and Cluster Meetings**

No.	item	Period
1	3 <sup>rd</sup> field survey (JICA)	August 15-September 11, 2004
2	1 <sup>st</sup> cluster meeting	October 14, 2004
3	4 <sup>th</sup> field survey (JICA)	October 24-November 6, 2004
4	2 <sup>nd</sup> cluster meeting	November 18, 2004
5	3 <sup>rd</sup> cluster meeting (IPC9/SMEs)	November 26, 2004
6	5 <sup>th</sup> field survey (JICA)	December 5-18, 2004
7	4 <sup>th</sup> cluster meeting	December 15, 2004
8	DENSO plant tour	December 23, 2004
9	5 <sup>th</sup> cluster meeting	January 13, 2005
10	6 <sup>th</sup> field survey (JICA)	February 3-23, 2005
11	6 <sup>th</sup> cluster meeting	February 11, 2005

The 5<sup>th</sup> cluster meeting was held on January 13, 2005 when the JICA mission was absent from Chon Buri, in order to review the master plan and make action plan for 2005. It was decided that the monthly cluster meeting will be held at 9:00 of Friday of the second week of every month. The meeting places will be rotated among member's location. The master plan was confirmed as follows:

**Strategic Plan of CAMC**

Vision: Irreplaceable player in the Thai auto parts industry in 2008

Mission: Catch up with changes in the Thai automotive industry

Strategies:

1. Promotion of product research and development
2. Improving productivity in the growing market
3. Improving quality for customer satisfaction
4. Strengthening of group activities for cooperation
5. Strengthening of capacity of BDS providers

Action Plan

The person in charge of proposed project should submit details to IPC9 by February 4, 2005.

Organization: See Figure 2.3-4.

## (6) Interest of the Chon Buri province governor in the CSCD

IPC9, cluster members and the JICA mission visited the Governor of Chon Buri to make presentation on the pilot project and request his support during the 6<sup>th</sup> field survey. The visiting members were as follows:

- Ms. Wanpen, Vice Director of IPC9
- Mr. Sombat, Vice MD of BT Autopart (Chairman of CAMC)
- Mr. Apichart, President of Asia Precision (Vice Chairman of CAMC)
- Mr. Surachet, MD of TMC
- Ms. Penthip, Chairperson of ATSME
- Dr. Wirogana, Dean of Faculty of Engineering, Brapha University
- Mr. K. Otsuka, JICA mission
- Mr. T. Nagai, JICA mission

The Governor showed keen interest in promoting the cluster activities and requested to keep informed about the progress of the activities.

## 2.2.2 (Output 2) IPC9 is Equipped with Capability as a Facilitator for the Cluster.

Since IPC9 had almost no experience in facilitating cluster activities before CSCD started, the JICA mission explained what the mission of cluster activities is and what function the facilitator performs. In promoting cluster activities, it is important for IPC9 to accumulate experience of cluster activities as the facilitator. In this sense, OJT (On the Job Training) plays an important role for capacity building of IPC9 at the initial stage of PP.

IPC9 gradually acquired capability of the facilitator in the CSCD project. Table 2.2-4 summarizes PDCA (Plan-Do-Check-Action) by stage of cluster development.

**Table 2.2-4 PDCA by Stage of Cluster Development**

Phase	P (Plan)	D (Do)	C (Check)	A (Action)
Initial stage	The JICA mission proposed an activity plan for the field survey. IPC9 accepted it through discussion with JICA mission.	The JICA mission visited various organizations and SMEs for setting up the cluster organization. IPC9 followed JICA activities (OJT).	IPC9 and the JICA mission reviewed what had been done for the cluster activities.	JICA coordinator (Thai consultant) recorded cluster activities.
Second stage	IPC9 can plan the cluster activities. The JICA mission gives advice as required.	IPC9 can facilitate cluster activities by themselves. The JICA mission assists IPC9.	IPC9 and the JICA mission jointly review what was done for the cluster activities.	JICA coordinator prepares job description and guidance for training of IPC9.

## (1) Project schedule and trouble shooting

The progress of PP (pilot project) preparatory work was reviewed by item by item based on WBS (Work Breakdown Structure) which had been created through discussion with the JICA mission and IPC9 in the 2nd field survey. Then IPC9 and the JICA mission identified what a problem was up to now and made a revised schedule for the 3rd field survey.

table

WBS is a table that summarizes the activities to be performed in the form of 5W1H plus "How much" and "What output" (See Table 2.2-5). Using this table, the work to be accomplished can be accurately checked. Therefore, the desired output is obtained as scheduled, if PIC (a person in charge) follows actions specified in the table as it is.

**Table 2.2-5 Work Breakdown Structure (WBS) for PP**

Category	Work process	Location	Closing date	Budget	PIC	Output

It is assumed that IPC9 consider it as critical that the unit work should be finished according to the project schedule. Otherwise the project would face a substantial delay. After the 3rd field survey, no significant problem occurred to cause a delay in the project.

## (2) Coordination

IPC9 planned to hold a cluster meeting on September 16 to evaluate the results of mutual visits and clarify the mission of PP. IPC9 also decided to hold the cluster meeting once a month. As mentioned before (See Table 2.2-2), IPC9 organized 6 cluster meetings in the absence of the JICA mission. Before holding a meeting, a lot of preparatory work is necessary such as selection of agenda, preparation of supporting papers, schedule adjustment, etc. IPC9 carried out these activities on its own. This proves that IPC9 is capable of assuming its role as facilitator.

### (3) Networking

IPC9 promoted the cluster activities within its jurisdiction using its experience in creation of network, as acquired during the pilot project. There were two clusters that had interests in PP outside of Chon Buri Province. The JICA mission made presentation to the two clusters in the 4th field survey as follows:

#### **Presentation of PP for two provinces in region of IPC9**

##### Date: October 2 (Tuesday)

- Location: Nakorn Nayok
- Attendants: Car repair and aluminum casting cluster (about 25 persons), IPC9, DIP, Officers from Nakorn Nayok Province

##### Date: October 3 (Wednesday)

- Location: PIO of Purachinburi Province
- Attendants: Auto-parts cluster (about 10 persons), IPC9, DIP, PIO of IPC9, DIP, PIO of Purachinburi Province

##### Contents of presentation

- Definition of the industrial cluster
- Advantages of the industrial cluster
- Case study of industrial clusters in Japan (Ota-ku)
- Explanation of the JICA master plan for industrial cluster development
- Explanation of master plan of APCB development
- Introduction of PP of APCB

### (4) Present capability of IPC9

IPC9 acquired capabilities as facilitator and promoted their own activities such as the creation of committees, invitation and admission of new cluster members, the coordination of industry-academia-government collaboration, and administration of cluster meetings.

IPC now carries out the following activities as facilitator:

- Administration of CAMC regular meetings (once a month)
- Preparation of short- and mid-term planning based on the master plan
- Plan, prepare and administrate varied seminars
- Coordination of industry-academy-government liaison
- Administration of the Web site and mini-library

- Administration of CAMC members
- Coordination of organizations concerned

### 2.2.3 (Output 3) Training Courses are Held for Successors of the Cluster and Young Entrepreneurs.

(1) First training seminar for young entrepreneurs

- Period: 29- 30 October 2004
- Place: Horse Shoe Point Resort Hotel
- Participants: 66 persons including 23 persons from SMEs and 13 persons from BDS providers
- Objective: To understand cluster development (1st day) and marketing method/production management for SMEs (2nd day)
- Program: See Table 2.2-6.

**Table 2.2-6 Program of First Training Seminar**

Time	Contents	Lecturers
<b>Oct. 29</b>	Orientation	DIP
09:00-	<ul style="list-style-type: none"> <li>• Self-introduction of participants including BDS providers</li> </ul>	
10:00-	Panel discussion: Business environment and support for APCB <ul style="list-style-type: none"> <li>• Briefing of business environment and supporting measures for APCB</li> <li>• Discussion: How to promote APCB and how to establish supporting network</li> </ul>	Ms. Wanpen, IPC9 TAI SME Bank
13:00-	Example of cluster development <ul style="list-style-type: none"> <li>• Thai Automotive Industry cluster development project               <ul style="list-style-type: none"> <li>- Motorcycle cluster (007) project</li> <li>- Automotive cluster project</li> </ul> </li> <li>• Cluster in Japan</li> </ul>	Mr. Chayapool, TMC TAI Mr. Nagai, JICA
15:30-	Latest status of Chon Buri Pilot Project	Mr. Otsuka, JICA
16:30-	Group discussion: How to proceed with joint prototype development Presentation (Group work)	IPC9
<b>Oct. 30</b>	Marketing management	Mr. Chayapool, TMC
09:00-	<ul style="list-style-type: none"> <li>• Consumer marketing (B2C) and industrial marketing (B2B) for SMEs</li> <li>• Sales promotion technique for SMEs in case of industrial marketing</li> </ul>	
10:30-	Case study practice (Group work) <ul style="list-style-type: none"> <li>• Completion of presentation material for the afternoon practice</li> </ul>	Mr. Otsuka, JICA
13:00-	Japanese manufacturer's operation and Thai local suppliers <ul style="list-style-type: none"> <li>• Mission of DENSO Group</li> <li>• History of automotive industry in ASEAN countries and their restrictive regulations</li> <li>• Challenge to the least cost in the world</li> <li>• Examples of improvement of motivation and way of production in DENSO Thailand</li> </ul>	Mr. Hayashi, DENSO Thailand

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15:00-	Workshop: How to develop business with Japanese firms <ul style="list-style-type: none"><li>• Practice: Presentation at initial approach to a Japanese firm (Group work)</li><li>• Comment</li></ul>	Mr. Hayashi, DENSO Thailand APCB members
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A special workshop was designed for training of sales talks on the second day of the seminar. Four companies made presentation of their companies and products using Power Point and their brochures to DENSO. Although the companies prepared presentation materials for only two hours or so before lunch, they made the best efforts in the process. After presentation, Mr. Hayashi gave comments and advice. One company seemed that it was the first time to talk with a Japanese company and it was a good opportunity for it to know what the Japanese company expected from suppliers.

Mr. Hayashi invited the cluster members to the DENSO factory for better understanding of what he taught. After the seminar, the plant tour was decided on December 23, 2004.

## (2) Plant visit to DENSO

The plant tour of DENSO was made on December 23, 2004 when the JICA mission was not in Thailand. IPC9 organized the visit successfully by themselves. 33 cluster members, in which 27 were SMEs, joined the tour (See Table 2.2-7).

The plant visit was a good opportunity for the cluster members to see how the production was managed in an advanced factory. The following summarizes comments by participants:

### 1) Benefits of the plant visit

- I came to learn what a good management system is.
- I understood more about how to implement the KANBAN system.
- Production process, inventory control, delivery process are adaptable and applicable to our factory.
- I come to know more about the Japanese style of management by TPS (Toyota Production System).
- A more comprehensive method how to apply the JIT (Just In Time) system in the production line

### 2) What is the difference between DENSO and SME factories?

- Management system
- Know-how and products
- Quality system and products
- Production technology, discipline, hygienic, high technology, qualification of human resources, readiness, potential of products and staff

**Table 2.2-7 List of Participants in Plant Visit to DENSO (Samut Prakam)**

Place: 11:00 from IPC9 → To Denso, Samutprakam 13:00

Date: December 23, 2004

No.	Name	Organization/Company	Title
1	Mrs. Wanpen Ratanakangwan	IPC9	Assit. Director
2	Ms. Rapornchanok tanoosang	IPC9	Officer
3	Ms. Nongyao Ngemrien	IPC9	Officer
4	Mr. Sombat Temeyasathit	SME: B.T. Autoparts Co., Ltd.	DMD
5	Mr. Suphareuk Winyanantakul	SME: B.T. Autoparts Co., Ltd.	
6	Mr. Somprasong Mana	SME: B.T. Autoparts Co., Ltd.	
7	Mr. Apinan Youngyai	SME: B.T. Autoparts Co., Ltd.	
8	Mr. Pongsak Amnuayyonwaree	SME: Amnuayyon Engineering (VIP Property)	MD
9	Mr. Nikom Jimthaisong	BDS: SME Bank	
10	Mr. Supisith Namwongsa	SME: Asia Precision Co., Ltd.	Engineer
11	Mr. Kampan Nanoi	SME: Asia Precision Co., Ltd.	Engineer
12	Mr. Sompm Tongsheeluang	SME: Asia Precision Co., Ltd.	Engineer
13	Mr. Surachet Kamolmongkolsuk	SME: T.M.C. Industry Co., Ltd.	MD
14	Mr. Teerephab Kamolmongkolsuk	SME: T.M.C. Industry Co., Ltd.	
15	Mr. Noppong Nikomchaiprasert	SME: Sumota Co., Ltd.	MD
16	Mr. Witaya Juonlee	SME: Sumota Co., Ltd.	
17	Mr. Phoomisak Nahom	SME: Sumota Co., Ltd.	
18	Mrs. Penthip Pomjadej	SME: Charoentaweekalek Co., Ltd.	
19	Mr. Amnaj Manpien	SME: Charoentaweekalek Co., Ltd.	
20	Mr. Somchart Suthirungkool	SME: CCR Limited Partnership	MD
21	Mr. Kritsana Choksuwannalab	SME: CCR Limited Partnership	
22	Mr. Adisom Riencharoen	SME: CCR Limited Partnership	
23	Ms. Boonya Boonsiri	SME: Jiem Tong Kee	
24	Mr. Amnuay Sanokham	SME: Jiem Tong Kee	
25	Mr. Sakchai Phaiking	SME; Kringkrilohakit	MD
26	Mr. Prayote Atthatom	SME: PT Prayot Tractor Co., Ltd.	MD
27	Mr. Teerasak Atthatom	SME: PT Prayot Tractor Co., Ltd.	DMD
28	Mr. Wirath Tanasantawee	SME: Tana Inter Co., Ltd.	MD
29	Mr. Omsin Lertpanasin	SME: Thai Motor Chain Co., Ltd.	MD
30	Mr. Wiwat Wongcharoen	SME: Servicethei Progress Management Co., Ltd.	
31	Mr. Tanet Saengsung	SME: Servicethei Progress Management Co., Ltd.	
32	Ms. Nipawan Meemark	JICA-coordinator	
33	Mr. Nawamin	JICA-interpreter	Interpreter

Attendants = 33 persons

- Production process
  - 5S system, JIT system, KANBAN system
  - Effectiveness of quality control and inspection
- 3) The outstanding features of DENSO
- Cleanliness
  - Each process system is controllable in expected quality.
  - Human resources management system
  - Well-organized workers' discipline, inventory control and FIFO (First-in, First-out) system
  - Corrective and preventive procedures
  - Speed of working time in each process, the flow of working order
- 4) Which item is applicable to your company?
- I realized where to start improving our factory, how to provide the frame of reference and set the working procedure.
  - I come to know how to improve the human resources in responsibility.
  - Use of the KANBAN system to communicate in the production line
  - Strategic planning
  - Reduce the time loss during process
  - Learned about the TOYOTA production process
  - Target control
  - Problem solving and system management
  - Factory management
  - 5S improvement and FIFO
- 5) Others
- Document and information system
  - How to convince workers to work with enthusiasm
  - To provide the frame of thinking and problem solving
  - This tour is useful and helps us to get many new ideas.
  - To realize in the area management of each process
  - Work efficiency
  - DENSO is a good sample of system management factory.
  - CAMC should visit TOYOTA to understand the related process which link from DENSO.

### (3) Second training seminar for young entrepreneurs

The 2<sup>nd</sup> training seminar was planned. The JICA mission reviewed the books purchased for the mini-library and found a good textbook for TPM (Total Productive Maintenance) which was translated from a Japanese textbook. The translator is Dr. Somchai Akarathiwa, Assistant Professor, Mahanakorn University. For this reason, the JICA mission decided to hire him as the lecturer.

Use of an appropriate book is one of the good methods to select the theme of seminar. The JICA mission advised IPC9 to consider books in the mini-library when they selected the theme.

A two-day seminar was held concerning TPM using textbooks of Thai version of "New TPM Development Program for Innovative Production" (compiled and published by JIPM) and "Total Productive Maintenance (TPM)" (compiled by lecturer). The outline of the training seminar is as follows:

- Period: 19-20 February 2005
- Place: Jomtien Palm Beach Hotel
- Lecturer: Dr. Somchai Akarathiwa, Assistant Professor, Mahanakorn University
- Participants: 50 persons including 40 persons from SMEs
- Objective: To understand TPM and learn how to apply TPM to own factory
- Program:
  - 1) Outline of TPM
  - 2) How to consider productivity improvement
  - 3) Development of voluntary maintenance activities
  - 4) How to promote planned maintenance
  - 5) How to develop initial-operation management
  - 6) How to promote quality maintenance
  - 7) Upgrading of operation and maintenance skills
  - 8) How to establish system for zero accidents and zero pollution incidences
  - 9) Small group activities in TPM
  - 10) Measurement of effects of TPM
  - 11) Summary of TPM

According to the questionnaire survey conducted after the seminar, almost all participants responded that they were satisfied with the contents of the seminar and wanted to apply what they learned to their

factories. Positive responses were given for other questions as well, suggesting that the seminar was very successful. Responses to the questionnaire survey are analyzed as shown in Table 2.2-8.

**Table 2.2-8 Reply to the Questionnaire**

No.	Question	Reply
1	What is your main responsibility in your company (organization)?	See Attachment 2-3 at the end of this chapter.
2	How was the TPM seminar on the whole?	(1) Excellent: 31%, (2) Good: <u>66%</u> , (3) Fair: 3%, (4) Not good: 0%
3	Which parts or points do you think good or not good?	See Attachment 2-3 at the end of this chapter.
4	Do you think the seminar is useful for your job?	(1) Very useful: 47%, (2) Useful: <u>53%</u> , (3) Can't tell which is which: 0%, (4) Not useful: 0%
5	What is the most interesting subject in the seminar?	See Attachment 2-3 at the end of this chapter.
6	Do you wish to apply what you have learned to your factory?	(1) Yes: <u>97%</u> , (2) Consider application in future: 3%, (3) No: 0%
7	How do you consider about lecturer(s)?	
7-1	Number of lecturers (Only one lecturer taught TPM in this seminar.)	(1) Suitable: <u>88%</u> , (2) Not suitable: 13%, (2) lecturers are desirable.
7-2	Teaching method and presentation	(1) Easy to understand: <u>91%</u> , (2) Average: 9%, (3) Difficult: 0%
7-3	Volume of contents	(1) Good: <u>78%</u> , (2) Too less: 13%, (3) Too much: 9%
8	We plan to continue to hold seminars as an activity of CAMC. Please answer the following:	
8-1	Do you think the seminars are suitable as an activity of CAMC?	(1) Yes: <u>88%</u> Please answer the questions after item 8-2. (2) No: 13%
8-2	What theme/topics do you wish to be taken up for the future seminars?	See Attachment 2.2-3.
8-3	How many days are suitable for a seminar?	(1) Evenings: 6%, consecutive ( <u>2</u> ) days, (2) One day: 6%, (3) 2 days: <u>78%</u> , (3) 3 days: 6%, (4) 4 days or over: 0%
8-4	Which is suitable for a seminar location below?	(1) Seminars without staying at a hotel: 13% (2) Seminars with staying at a hotel: <u>78%</u>
9	Do you wish to participate in and/or let your company's personnel participate in a long-term seminar providing a series of curriculums?	(1) Yes: <u>97%</u> , Please answer the question of 9-1. (2) No: 3%
9-1	Which period do you select for a long-term seminar below?	(1) Night course: 3%, (2) Course of Saturdays/Sundays: <u>78%</u> , (3) Day course: 13%

### 2.2.4 (Output 4) Functions of IPC9 in Collection and Distribution of Information is Improved.

It is difficult for companies to survive without getting useful information related to their business, technology, etc. Compared to Bangkok where much information is available from various sources, it is not easy to obtain latest information in Chon Buri. If the cluster can have access to useful information, it will be able to use it for cluster members for business development purposes. In this recognition, information gathering activities were designed and carried out as one of the important activities of the pilot project.

#### (1) Mini-library

There are few SMEs who have a library within the company. A library is an important source of information for SMEs that want to obtain basic and advanced knowledge which is useful to develop their capabilities. For this reason a mini-library was planned in IPC9 as shown in Table 2.2-9 and Figure 2.2-1.

**Table 2.2-9 Outline of Mini-Library**

<ol style="list-style-type: none"> <li>1. Location: 6<sup>th</sup> floor of IPC9 (See Figure 5-1-1 for the layout of mini-library.)</li> <li>2. Languages of books and magazines: Mostly Thai languages with some English</li> <li>3. Category <ul style="list-style-type: none"> <li>• Automobile</li> <li>• Machinery</li> <li>• Industrial technology (materials, plastics &amp; rubber, mold &amp; die, inspection, etc.)</li> <li>• Engineering</li> <li>• Information &amp; communication technology (ICT)</li> <li>• Electrical &amp; electronics</li> <li>• Industrial standards (including JIS)</li> <li>• Production and quality management (control)</li> <li>• Corporate management</li> <li>• Human resources management</li> <li>• Financing &amp; accounting</li> <li>• Directory &amp; yearbook</li> <li>• Textbooks, reports &amp; papers</li> <li>• Language</li> <li>• Magazines</li> </ul> </li> <li>4. Link to IPC9's Web site <ul style="list-style-type: none"> <li>• Guidance for use including registration and procedure for lending/borrowing</li> </ul> </li> </ol>
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- Book list and information on new books

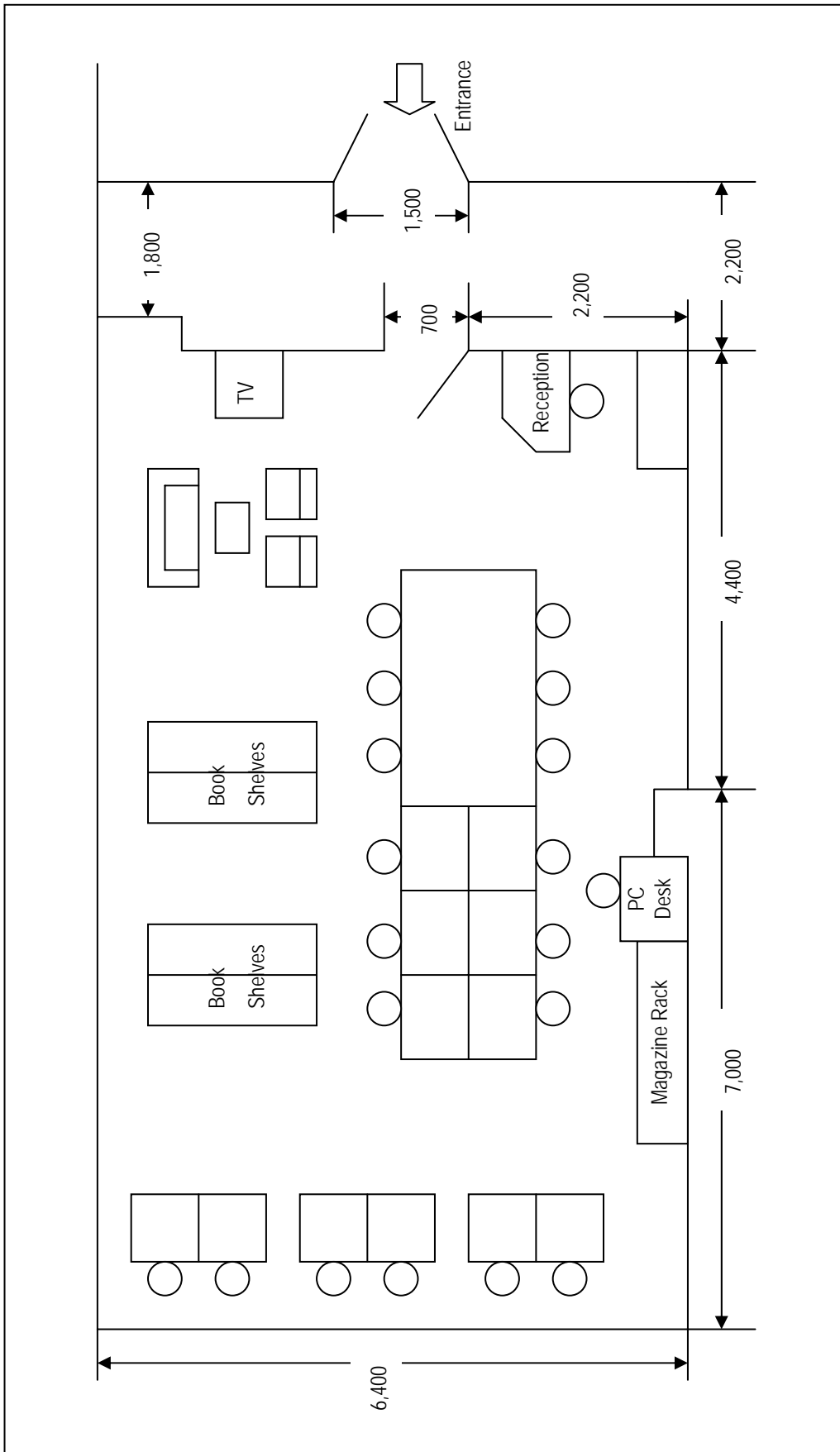


Figure 2.2-1 Layout of Mini-Library



The mini-library has about 800 books, 20 magazines, and many CDs and video tapes. CAMC members borrowed 100 books before the opening of the mini-library. The opening ceremony was held on 22 February 2005 by inviting about 30 guests.

The following activities were completed to make the mini-library ready for use:

- Guidance to use library
- Guidance for lending/borrowing procedures
- Format (records of visitors, lending of books, book cards, etc.)
- Identification codes of books by category
- List of books by identification codes and number
- Content of the Web site for library

## (2) Web site

The outline of Web site is illustrated in Figure 2.2-2.

A basic concept of the Web site was completed in the 3<sup>rd</sup> field survey, followed by the Web design and input of related information. The server of DIP is used to publish the Web site. The Web site of CAMC can be seen from that of IPC9 (<http://ipc9.dip.go.th>). The JICA coordinator made several presentations to the cluster members about how to use the Web site and what is included in it.

## (3) Newsletter

Three newsletters were published during the pilot project period. Their content is as follows:

- 1) Address by IPC9
- 2) Summary of the master plan of CSCD and the pilot project
- 3) Activities of CAMC
- 4) Case study for the Japanese industrial cluster (series)
- 5) Notice for CAMC events
- 5) Introduction of the mini-library and the Web site
- 6) List of CAMC members

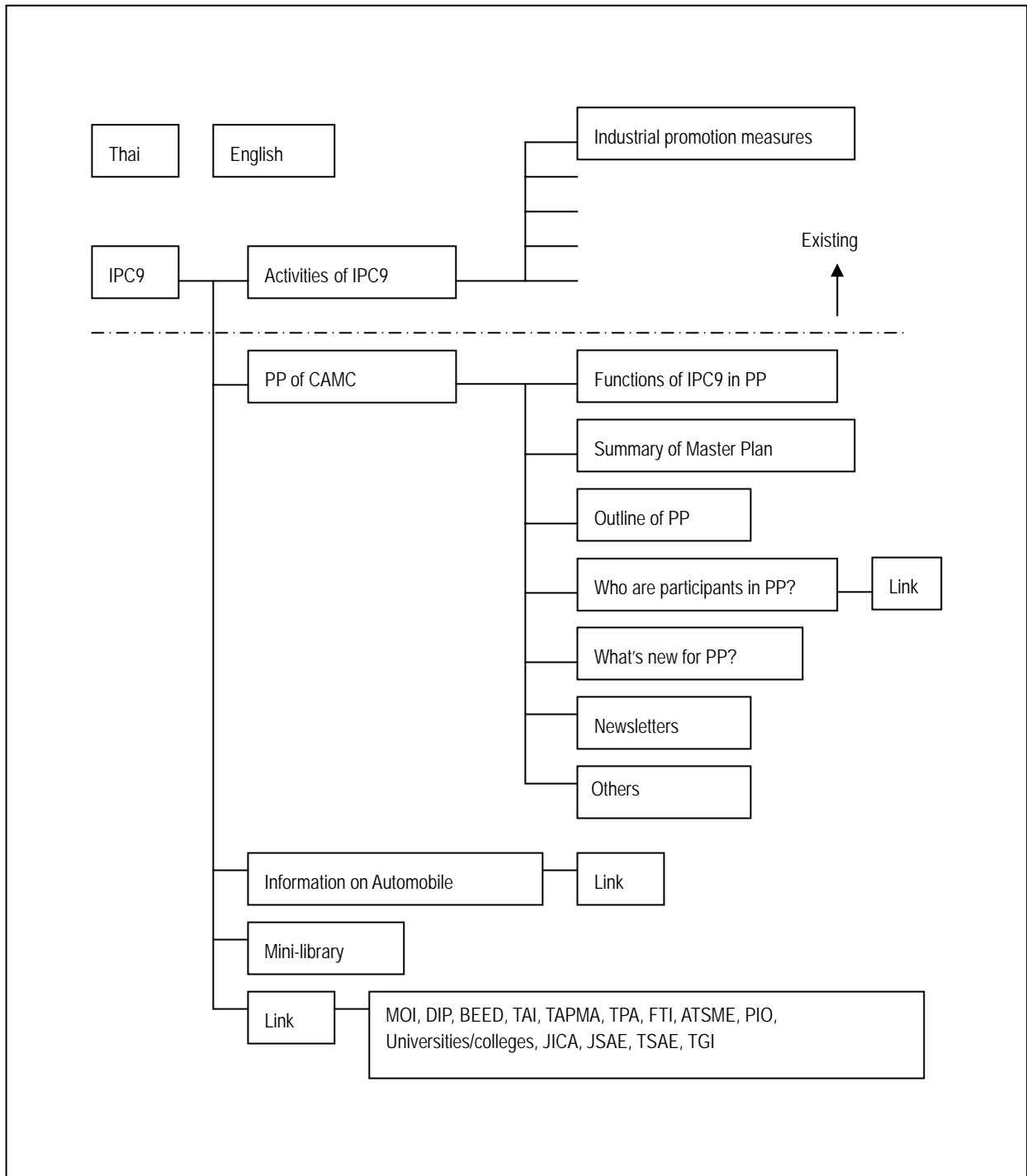


Figure 2.2-2 Outline of the Web Site

#### (4) Catalogue

Four kinds of catalogue were published.

- 1) Pilot project
- 2) Cluster member catalogue (IPC9, BDS providers and 8 SME members)
- 3) Additional cluster member catalogue (8 companies)
- 4) CAMC catalogue

The catalogue is a good tool to introduce what the industrial cluster in Chon Buri looks like and does. And it is also useful to introduce member companies, because some SMEs do not have attractive company brochures. IPC9 and BDS providers such as Brapha University effectively utilized it for making the network etc. IPC9 distributed the Nos.1 and 2 catalogues (more than 1,000 sets) to visitors at "Eastern Seaboard Industrial EXPO" held in September 2004.

#### **2.2.5 (Output 5) Joint Projects among Enterprises, Academies and Governments take Root in the Region**

At the cluster meeting on 13 January, collaborative activities among industry, academic circles and government were proposed as follows:

- R&D and innovation
- Improvement of productivity and quality
- Human resources development
- Internship of students
- Development focusing on specific needs of SMEs

##### (1) Joint Development Agreement (Draft) and Memorandum of Understanding for Collaboration among Industry, Academic Circles and Government

The JICA mission proposed to make agreement for joint development as part of industry-academia-government collaboration in the 3<sup>rd</sup> field survey. The JICA mission prepared the following document in Japanese, and the Thai version is published at CAMC's Web site.

- Draft Agreement for Joint Development and Guideline for Joint Development Agreement

In order to keep the industry-academia-government collaboration on a long term basis, it is effective to make a Memorandum of Understanding (MOU) which specifies the contents of comprehensive collaboration among the three sectors. The MOU is generally concluded in Japan. The JICA mission proposed an idea for the MOU in the 5<sup>th</sup> field survey. In Chonburi, for instance, the MOU on the collaboration concerning human resources development has been concluded between Burapha University and Amata Nakorn Industrial Estates.

The MOU on the collaboration for the pilot project was concluded on 19 May 2005 (See Attachment 2-4 at the end of this chapter). The scope of collaboration is as follows:

- Human resources development including training and seminars
- Technical instruction and consultation
- Preparation of an official skill certification system
- Internship
- Development of parts, components and equipment
- Research and Development (R&D) of new parts, components and equipment
- Exchange of related information
- Other subjects that IPC9, University and Company request

The MOU were signed the following five persons:

<Industry>

- Mr. Sombat Temiyasathit, Chairman of CAMC (Represent SME members, Managing Director of BT Autopart)

<Academies>

- Dr. Wirogana Ruengphrathuengsuka, Dean of Engineering Faculty, Burapha University
- Mr. Wachara Anusarsanakun, Director, Thai-Austria Thechnical College
- Mr. Prasert Klinchoo, Director, E-TECH

<Governments>

- Mr. Wanchai Radchadamat, Director, IPC9

(2) Joint development between industry and academies

The JICA mission proposed the joint development plan and discussed it with universities and SMEs.

Major advantages for each party are considered as follows:

(a) Advantages for industry

- Industry can use fresh ideas about product development generated by universities.
- Industry can learn innovative technology that is difficult for private companies to access.
- Industry can make linkage with universities to consult technical problems etc. as well as to carry out joint development.
- Industry can use university facilities.

(b) Advantages for universities and students

- Universities can learn practical technology relating to “product making” possessed by manufacturers.
- Students can discover the importance of and the interest in “product making.”
- Universities can establish collaboration relationship with industry.
- Students are given of opportunity to gain work experience by working for companies as intern.

Through discussions with SMEs and universities, the following joint development projects were conceived and are currently underway:

1) E-TECH

The JICA mission decided to provide E-TECH with financial assistance of 50,000 THB for purchasing parts to make the following products: an electric vehicle (F-1); an electric wheel chair; a small rice huller; a water pump equipped with a tappet valve. Students completed prototype production at the end of January 2005.

E-TECH made demonstration on the four products to the JICA mission during the 6<sup>th</sup> field survey. All the products were confirmed to demonstrate satisfactory performances.

- Electric vehicle (F-1): Thai Motor Chain is interested in development of other type of electric vehicle to use the mechanism of F-1. Cluster members are also discussing to develop electric vehicles by industry-academia collaboration.
- Electric wheel chair: It is No. 3 proto type product which can be commercialized with some modification. E-TECH plans to raise fund by donation to make some electric wheel chairs for hospitals in Chon Buri.

- Small rice huller: It will be used for small farmer groups who remove rice husks for their own use.
- Water pump with tappet valve: It works without electricity. It is expected to use for pumping up water for irrigation at places where electricity is not available.

2) E-TECH/Asia precision

E-TECH and Asia Precision will develop a compacting machine of metal chips from machine tools. The JICA mission provided E-TECH with assistance in purchasing parts at about 45,000THB.

3) Burapha University/TMC

Semi-automatic folk lift was developed jointly by TMC and Burapha University. The JICA mission provided TMC with assistance in purchasing parts at about 20,000THB.

4) Others

Following talks are made for joint product development:

- Mini tractor between TMC, SUMOTA, PROYOTT Tractor
- Grass cutting tractor between TMC and SUMOTA

(3) Education

The following plans are underway as joint initiative between universities and SMEs after the 5th field survey:

Universities will assist SMEs in improving productivity and quality. SMEs will accept students in their factories as an internship program.

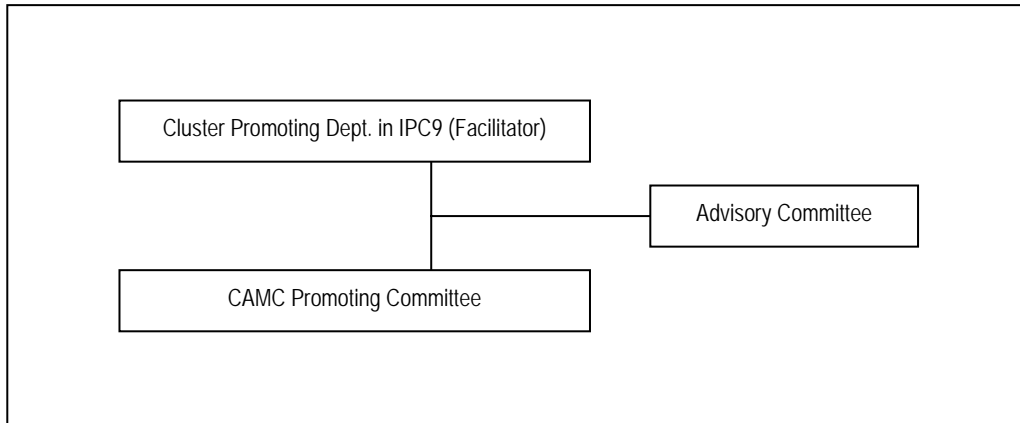
## **2.2.6 (Output 6) A Foster Parent Program is Proposed to Large Scale Companies.**

This program aimed at development of business relations between large companies and Thai SMEs by means of preferential 3-year employment of sons and daughters of Thai SMEs. However, neither party showed strong interest in the program until the end of the pilot project, and it will be subject to future consideration.

## **2.3 Organization Established for the Cluster**

### **2.3.1 Overall Structure**

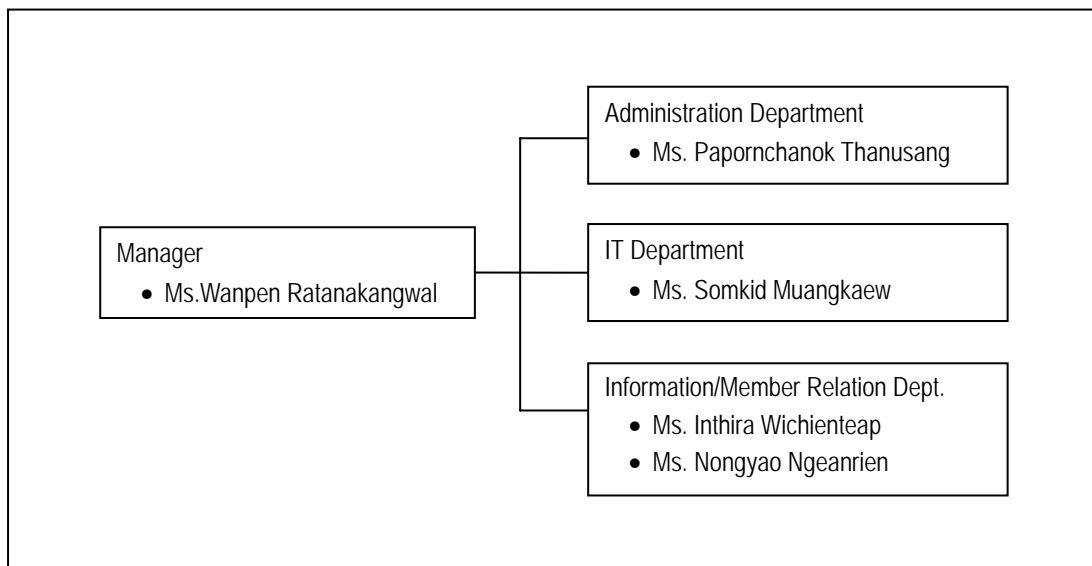
Three organizations have been established to promote CAMC activities as shown in Figure 2.3-1.



**Figure 2.3-1 Organizations to Promote CAMC**

**2.3.2 Cluster Division within IPC9**

The Cluster Promoting Dept. has been organized within IPC9 as shown in Figure 2.3-2. The objective of the department is to coordinate and administer the cluster activities as a facilitator of CAMC.



**Figure 2.3-2 Cluster Promoting Department within IPC9**

### 2.3.3 Advisory Committee

The Advisory Committee chaired by Chon Buri Governor has been established to review the plan and activities of CAMC and give relevant advice to CAMC as shown in Figure 2.3-3.

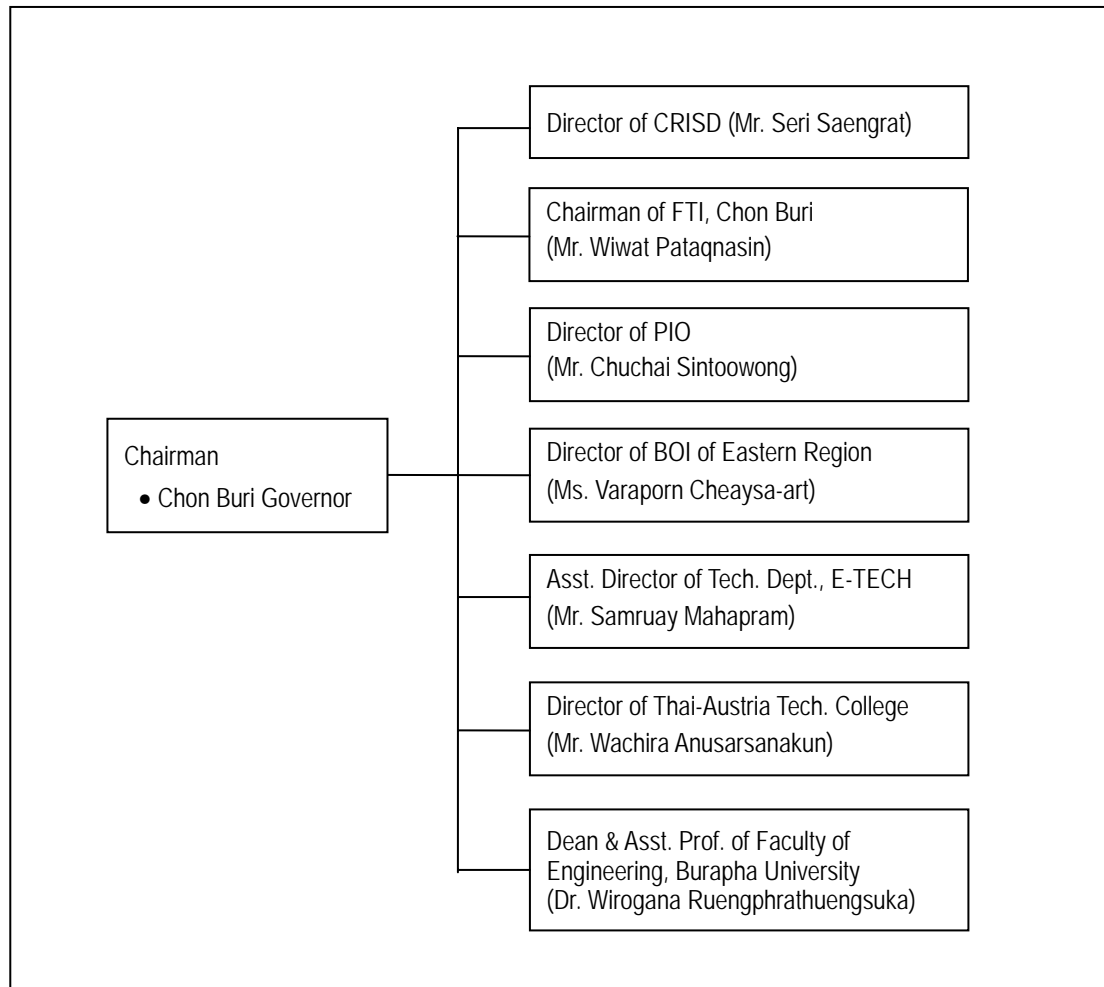


Figure 2.3-3 Advisory Committee

### 2.3.4 CAMC Promotion Committee

The CAMC Promotion Committee has been organized to plan and manage activities of CAMC as shown in Figure 2.3-4.



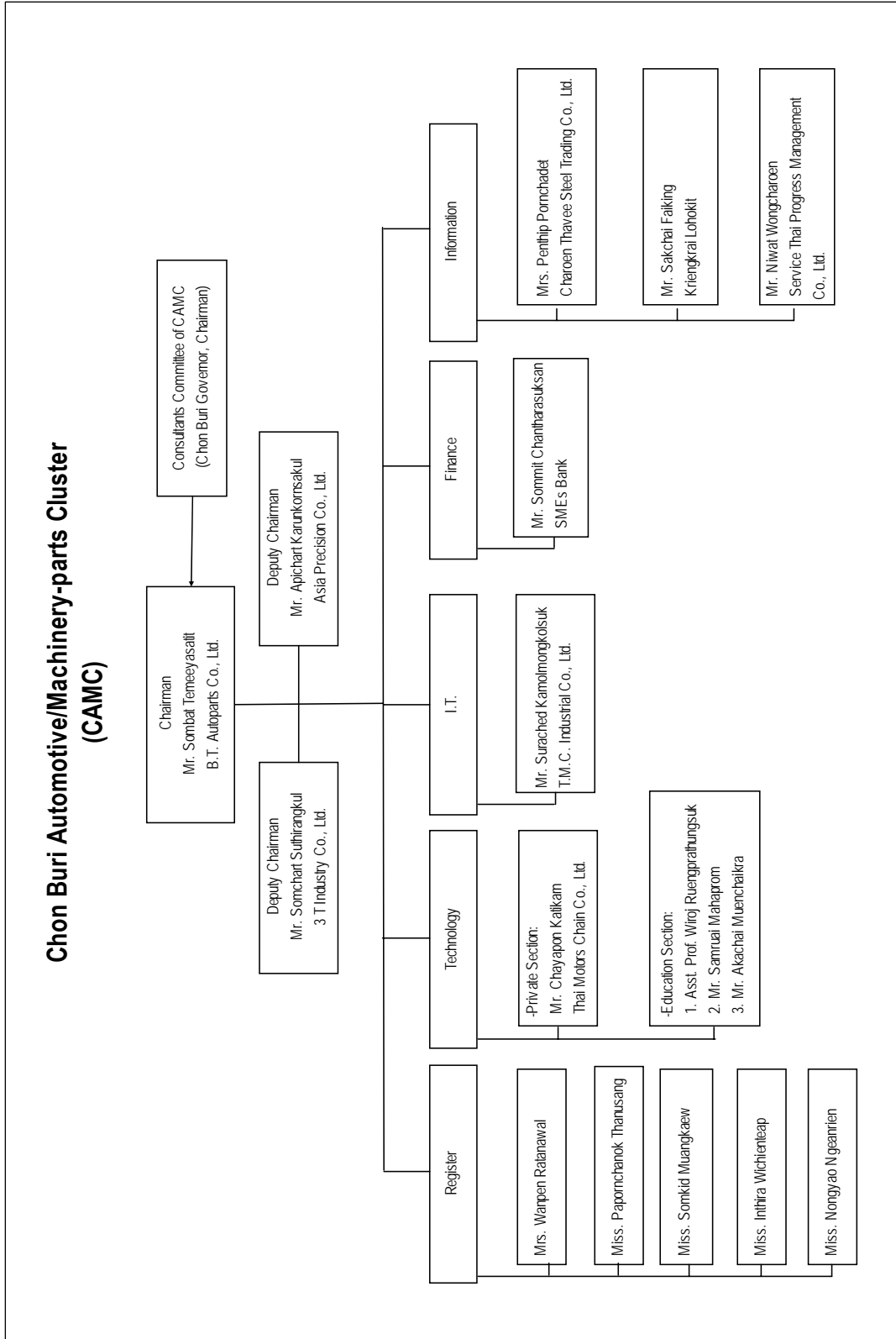


Figure 2.3-4 CAMC Promotion Committee

## **2.4 Terminal Evaluation**

Terminal evaluation was conducted after the completion of the pilot project.

- Period for terminal evaluation: 8 May 2005-1 June 2005 (including the 2nd Seminar period)
- Methodology: Interview survey of people and organizations concerned in Chon Buri Province and Bangkok, questionnaire survey and review of records
- Method for data collection: Available documents including "Pilot Project Report", Review of the questionnaire survey at the 2nd Seminar and interview surveys
- Evaluation method: Verification of project performance and evaluation on the basis of the five evaluation criteria
- Evaluator: Kunio Otsuka

The purpose and the methodology for terminal evaluation are summarized in Annex attached at the end of this report.

### **2.4.1 Plans for Verification of Project Performance and Evaluation Study**

#### **2.4.1.1 Verification of Project Performance**

Attachment 2-5 at the end of this chapter shows a summary table assessing the pilot project and its results (for the field survey). It consists of two elements: verification of project performance and verification of the implementation process (refer to Annex for the explanation of the table for the project results). It summarizes the methodology for and content of evaluation of the pilot project, including specific criteria and method for judgment, survey items, required data, information sources and data collection method.

#### **2.4.1.2 Evaluation Study Plan (Five Evaluation Criteria)**

Attachment 2-6 at the chapter end summarizes the evaluation grid for the pilot project using five evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability). Refer to Annex for the explanation of the evaluation grid. It summarizes the methodology for and content of evaluation of the pilot project using the five evaluation criteria, including specific criteria and method for judgment, survey items, required data, information sources and data collection method.

## 2.4.2 Verification of Project Performance

### 2.4.2.1 Verification of Project Performance

See Attachment 2-5 at the end of this chapter. Evaluation was made by comparing the results with planned indicators for inputs, outputs, project purpose and overall goal in verification of the performance.

For inputs and outputs, an achievement ratio was evaluated by comparison of planned indicators with measured ones. In principle, the achievement ratio over 70% is considered to be successful.

#### (1) 01 Was the "Input" conducted as planned?

The inputs by the Japanese side were the input of Japanese experts, hiring of Thai coordinators (ICT and automotive parts) and Thai secretary, payment for joint development costs, costs for purchase of books and project management costs. The inputs by the Thai side were the assignment of PICs (persons in charge) of counterpart, the provision of office space, office supply and project management costs.

Inputs relating to the Thai secretary and development costs were below 70% in terms of achievement ratio. The higher ratio was achieved for other inputs. The average achievement ratios were 86% for the Japanese side and 95% for the Thai side. Therefore, most inputs have been provided as planned.

#### (2) 02 Was the "Output" produced as planned?

Evaluation was made for the following six outputs listed in PDM:

##### 1) Output 1 (The organization for cluster promotion is structured in the region.):

(a) The Advisory Committee was formally established at the CAMC Opening Ceremony (7th site survey), although it was behind the schedule;(b) the CAMC Development Committee was organized. Therefore, the verifiable indicator shows an acceptable level, judging from the above achievements. (Achievement ratio: 85%)

CAMC holds regular meetings once in a month and makes its activities actively.

##### 2) Output 2 (IPC9 is equipped with capability as a facilitator for CAMC.):

The verifiable indicator reaches an acceptable level, judging from the fact that the Cluster Development Department was organized within IPC9 and required staffs were assigned. However, the staffs also kept original position. (Achievement ratio: 90%)

3) Output 3 (Training courses are held for successors of CAMC and young entrepreneurs.):

Two training seminars were held as planned. The participants from SMEs were 23 (total: 60) and 40 (total: 50) persons in the 1st and 2nd seminars, respectively. In addition, 27 persons from SMEs (total: 33) participated in a factory observation at DENSO.

Therefore, the verifiable indicator is at an acceptable level, judging from the above performance. (Achievement ratio: 95%)

The training seminar will be continued by CAMC after the JICA assistance completed. Another factory observation was conducted at KOMATSU on 17 May 2005.

4) Output 4 (Functions of IPC9 in collection and distribution of information is improved.):

(a) Mini library was open within IPC9. (b) CAMC's Web site is under operation. (c) Three Newsletters were published. (d) The search of the mini library (800 books, 20 magazines, CD, etc.) can be made through the Web site. The Web site is renewed and the Newsletters can be seen at the Web site.

Therefore, the verifiable indicator is satisfactory, judging from the above achievement. (Achievement ratio: 95%)

5) Output 5 (Joint projects by enterprises, universities academies and governments take root in the region.):

(a) The activities for the industry-academia-government collaboration are conducted as a function of the CAMC Development Committee; (b) "Draft agreement on joint development among industry, academia and government sectors" and its guideline were written in Thai language, and the "Memorandum of Understanding on Technical Cooperation" was concluded at the opening ceremony of CAMC (7<sup>th</sup> field survey); and (c) Two joint product development projects were completed and one project is under way. Therefore, the verifiable indicator is considered to be at an acceptable level, judging from the above achievement. (Achievement ratio: 80%)

There are some joint development projects under study, and the plan for training of company employees by collaboration with colleges and universities is under way.

6) Output 6 (A foster parent program is proposed to large scale companies.):

The idea of Output 6 was talked to several large companies; however, specific activities were not undertaken.

Therefore, the verifiable indicators do not reach an acceptable level. (Achievement ratio: 20%)

Responses include that advantages for the private company were not clear etc. Thus, Output 6 needs to be fulfilled in the future.

The achievement ratios were judged quantitatively (qualitatively for some ratios). Except for Output 6 that has reached the achievement ratio of only 20%, the rest of outputs showed over 70% in terms of achievement ratio, which is considered to be successful. The average ratios are 78% and 89% for 6 and 5 outputs excepting Output 6, respectively.

Therefore, it is judged that 5 outputs except the Output 6 were successfully achieved.

(3) 03 Will the project purpose be achieved?

Concerning the project purpose (IPC9 functions as a BDS facilitator of the target group (CAMC)), 10 BDS providers were registered with CAMC (verifiable indicators: 5 or more BDS providers) and built up the cluster network with assistance of IPC9. IPC9 also conducted well coordination of BDS providers.

Therefore, the project purpose will be achieved, as judged from the above.

(4) 04 Are there prospects that the overall goal will be achieved?

Concerning the overall goal (the capacity and network of BDS providers are strengthened), the following results were produced:

- Collaboration between industry, academia and government (joint product development and training):  
5 projects including ongoing projects
- SME Bank (financing in development projects): plan in FY2005
- CRISD (training program): 1 program

It is expected that the SME members in CAMC will increase by 10, up 50% in 5 years from now as compared with the present (23 SMEs). Along with this, it is expected that the projects such as collaboration projects, financing by the SME Bank and training by CRISD will increase. In order to satisfy the verifiable indicator of the overall goal, which is "beneficiaries of BDS providers increase to double", it is necessary further to make efforts not only to seek sustainability but also to raise the degree of satisfaction and increase the successful cases.

#### **2.4.2.2 Verification of the Implementation Process**

See Attachment 2-5 presented at the end of the chapter. The verification was conducted by comparison of the plan with the results by posing the following seven questions:

- Did "Activities" perform as planned?

- Were there any problems in technology transfer?
- Were there any problems in the project management system?
- Did implementation organizations and counter part understand the project well?
- Was a suitable counterpart assigned?
- Did the target group and concerned organization actively participate in the project and understand it well?
- What factors influenced the problems occurring in the project implementation process and the produced effects?

(1) 05 Were the activities implemented as planned?

1) Activities to achieve the Output 1:

The CAMC members become 33 organizations/SMEs (23SMEs) and the CAMC Promotion Committee was organized. There was no significant problem relating to the activities, which were conducted as planned. A major issue in the future is to formulate sub-committees according to the purpose of activity so as to conceive what CAMC aims at on a continuous basis.

2) Activities to achieve the Output 2:

The Cluster Development Department was organized within IPC9 and staffs were trained on information-related subjects. There was no significant problem as the activities were conducted as planned.

3) Activities to achieve the Output 3:

The training seminars are considered to have produced successful results more than expected in terms of number of participants, evaluation of seminar results by participants, etc. The reasons are twofold: the seminars met the needs of SMEs and the factory observation was carried out.

4) Activities to achieve the Output 4:

Thai coordinators conducted the following four activities under the instruction of the JICA mission. The issue from now is the continuous utilization of ICT system and its maintenance.

- ICT system using Web site of CAMC was made.
- The system to collect data and information was established including the collection of information from TAI (Thailand Automotive Institute) and TPA (Technology Promotion Association), subscription of journals and magazines, etc.
- Web site of CAMC was built up using LAN of IPC9 and a server of DIP. It was completed in October 2004, ahead of schedule.

- The library operation system was formulated in addition to the purchase of books and library furniture. The Web site allows users to view a book list and summary of books stored in the library.

5) Activities to achieve the Output 5:

The activities described in (2) - 5) of 2.4.2.1 were carried out. The activities started from the 4<sup>th</sup> field survey, following the preparatory work conducted during the 3<sup>rd</sup> field survey. The schedule was slightly delayed, but spending sufficient time for the preparation led to positive activities by promoting the understanding of concerned persons about the collaboration between industry, academia and government.

6) Activities to achieve the Output 6:

The responses of large enterprises were not promising because advantages for the company were not clear and there were no concrete plan about who would be selected and how they would be trained. It is necessary to make a clear plan and conduct a needs survey prior to the realization.

(2) 06 Were there any problems in the method for technology transfer?

Basically, the JICA mission adopted the method that IPC9 takes leadership. When the JICA mission gave a direct advice to BDS providers and SMEs, it let IPC9 follow up for the necessary assistance. This procedure is considered to enhance the ownership of IPC9. It is one of the reasons for conducting smooth activities that the Thai coordinators took proper actions through frequent communication with the JICA mission. Therefore, there was no significant problem.

(3) 07 Were there any problems in the project management system?

The JICA mission supervised IPC9 as a facilitator, and IPC9 supervised BDS providers and SMEs (beneficiaries). Especially, the JICA mission conducted project management by empowering IPC9 with project ownership. IPC9 well understood the policy of the JICA mission, and there was no significant problem relating to the management system.

(4) 08 Does the project have a high recognition in the implementing agency and counterpart?

When the pilot project just started, the motivation of counterparts responsible for project implementation was not very high, because they did not well understand the cluster activities. However, IPC9's motivation was gradually heightened along with the progress of cluster activities. BDS providers

(especially university and colleges) as well as SMEs came to recognize the importance of the pilot project through the implementation of seminars, training courses, joint projects, etc. Therefore, public recognition of effectiveness of cluster activities increased significantly as result of project implementation.

(5) 09 Was a suitable counterpart assigned?

The JICA mission selected IPC9 as a suitable counterpart considering the function of a facilitator. Effectiveness measured by IPC9's capability, the degree of understanding of the project, response to the Thai government, etc. are satisfactory. Therefore, IPC9 is considered to be a suitable counterpart.

(6) 010 Is the degree of participation of the target group and organizations in the project high?

At the initial stage of the pilot project, public recognition of the pilot project was not very high, because the purpose of the pilot project could not be well understood. Along with the progress of the pilot project, the number of participants in various activities increased, and they evaluated them highly. Through these activities, the recognition by the target group and concerned organizations was greatly enhanced.

(7) 011 What factors influenced the problems occurring in the project implementation process and the produced effects?

- At the orientation seminar held at the initial stage of the pilot project, participants from SMEs, universities and governments discussed how to promote the cluster activities. During the discussion, it was agreed that mutual visits by members would be required for better understanding of members. And the mutual visits were planned and undertaken. This promoted a better understanding of the members and helped to build up the cluster network.
- Four persons in charge representing DIP/IPC received training in Japan. They visited the METI, local governments, universities, companies, etc. to learn what kinds of cluster activities were conducted in each sector. Ms. Wanpen from IPC9 told that what had been done in Chon Buri was also done in Japan with success in most cases, reinforcing her confidence in continuing cluster activities in the country.
- Participation of qualified/competent Thai staffs (coordinators, interpreters, etc.) influenced project results in terms of effectiveness. Especially, it is one of the reasons by the project purpose has been achieved within a relatively short period that coordinators who well understood what the pilot project was, accomplished their tasks according to the instruction of the JICA mission and worked



properly according to their own purpose and interest. Concerning the selection of coordinators, DIP advertised for it and selected them on the basis of interview in consultation and cooperation of the JICA mission. Therefore, the study team was able to know their capabilities to some extent in advance and the coordinators made it as expected. It is important to hire local staffs that the JICA mission itself interviews them to find qualified persons.

### **2.4.3 Five Evaluation Criteria**

The evaluation grid was filled in with the following survey results for analysis, followed by evaluation on the basis of the five evaluation criteria. Refer to Attachment 2-6 of the end of this chapter.

- Assessment of results and examination of the implementation process (refer to 2.4.2)
- Analysis of records of pilot project implementation
- Interview survey of IPC9, DIP, etc.
- Interview survey of major companies, BDS providers, etc.
- Questionnaire survey at the 2nd Seminar (Refer to Attachment 2-7 at the chapter end).

#### **2.4.3.1 Relevance**

For the following reasons, this pilot project is considered to be of high relevance.

- (1) The relevance of the pilot project's strategy is high.

Strategies adopted for the pilot project (regional development and regional SME development by cluster activities) are considered to be of high relevance for the following reasons:

- 1) In Chon Buri Province that did not adopt no SME development strategy based on cluster activities, the pilot project demonstrated the viability of such strategy. In the pilot project the JICA mission assisted IPC9, which should be a core for the cluster promotion, in building the capability as a facilitator, which constituted the project purpose. As the result, IPC9 was able to organize the CAMC and coordinate the cluster activities, so that it was able to not only promote CAMC activities but also formulate other cluster organizations.
- 2) In Japan, cluster activities have been widely promoted over a long period of time, such as SME's machine industry cluster in Ota City in Tokyo, and various businesses utilizing the network of

enterprises have been conducted effectively. In addition, collaboration among industry, academia and government has been active, leading to new product development and other measurable results. The JICA mission selected methods suitable for the pilot project among those that were used in Japan.

- 3) As a ripple effect of the pilot project, there is a plan relating to parawood furniture cluster development, which is to create a cluster organization consisting of 14 SMEs in Chon Buri aiming at export of their products by themselves. IPC9 has applied the plan to DIP for subsidy.
- 4) As mentioned above, since the method applied to the pilot project can be used for other projects in different industrial sectors, it is consistent with the national strategy that aims at expanding cluster projects nationwide.

(2) The necessity of the project is high.

Necessities of the pilot project aiming at upgrading the whole SMEs of CAMC by cluster activities is considered to be high for the following reasons:

- 1) There are many automotive parts manufacturers in Chon Buri, and most of them are Japanese companies that are operating in Amata Nakorn and other industrial estates. On the other hand, local automotive and machinery parts manufacturers are largely located outside the industrial estates. With few exceptions, there is a big difference in level of technology between the two groups of parts manufacturers. Many Thai SMEs feel that they were destined to decline unless efforts are made to improve the situation in Chon Buri, but they do not know what to do..
- 2) In the pilot project, the JICA mission assisted in activities including the fostering of the facilitator (IPC9) for cluster promotion, networking, human resources development, information collection/distribution, development of industry-academia-government collaboration using BDS providers, etc. Through these activities, the cluster members began to build confidence that they would be able to improve the situation by the aid of the CAMC organization as a nucleus.
- 3) The strong interest in the pilot project is evidenced by the fact that as many as 66 concerned people from SMEs, universities and governments attended at the 2<sup>nd</sup> Seminar for presentation on the results of the pilot project. In the questionnaire survey carried out at the seminar, a high percentage of respondents (91%) said "yes" to the following question: "Did the pilot project meet the needs of the region, society and target group?"

- (3) The priority of the project is high.

The priority of this pilot project is considered to be high for the following reasons:

- 1) Fostering of the industrial cluster and SMEs in line with "Thai National Project Implementation Plan"  
In "Thai National Project Implementation Plan" (4 year plan: 2005-2008), the industrial cluster development is taken up in Section 3.2.6 "Policy for industrial cluster and SME development to strengthen industry" of Chapter 1 "Policy and strategies in industrial sector". In addition, the automotive industry is among the six important industrial sectors (foods, fashion, automobile, electricity & electronics, energy and design). Therefore, the pilot project aiming at the development of automotive and machinery parts industries by cluster promotion is consistent with the Thai industrial policy.
- 2) Cluster network development based on "National Committee on Competitive Advantage (NCC)"  
"National Committee on Competitive Advantage (NCC)" chaired by Prime Minister Thaksin advocated "Thailand Cluster Networking Development", and selected DIP of the Ministry of Industry as a key organization for implementation. In response to this, DIP requested a FY2006 budget for cluster development to the Ministry of Finance. The IPC9's budget for continuation of the pilot project is included in the budget request.
- 3) Cluster and SME development by DIP and IPC9  
As mentioned above, the Thai government promotes policies for improvement of SME's capability for competitiveness and SME development, and cluster activities are used as a tool to achieve the goal. Therefore, cluster activities are one of the important policies for DIP which promotes SME development. Since IPC9 is responsible for promotion of DIP's policies in the designated regions, this pilot project is also consistent with the IPC9's regional development policy.
- 4) Provincial cluster development and industrial development strategies  
"Cluster projects" in Chon Buri Province cover six fields (manufacturing, tourism, agriculture, export oriented city, improvement of environment/living conditions, and one stop service). As the pilot project aims to develop a cluster in the industrial sector, it is consistent with the provincial development policy as well.
- 5) Japanese cooperation strategies to Thailand  
In Japan's ODA Plan by Country (Thailand), assistance to encourage independent development and the strengthening of human resources development is emphasized in the chapter "Direction for Japanese Assistance" in "Japanese ODA Policy for Thailand." "Japanese ODA Policy by Important

Sector and Issue" specifies the assistance for SMEs etc. Furthermore, "JICA's Plan for Project Implementation by Country" takes up the regional SME promotion, utilizing R&D in production sector, etc. ("The Basic Concept of JICA's Cooperation").

#### **2.4.3.2 Effectiveness**

For the following reasons, effectiveness of the pilot project is substantially high:

- (1) The achievement of the project purpose (IPC9 functions as a BDS facilitator of a target group (CAMC).) is considered to be high.

The Cluster Development Department having five staff members was established within IPC9. IPC9 has built capabilities as the facilitator by the pilot project (Output 2). The CAMC was organized (Output 1) and the CAMC decided the cluster activities focusing on human resources development and collaboration among SMEs, universities and governments. IPC9 as the facilitator is greatly expected to well function in the cluster activities, and IPC9 is capable of responding it by its organization and capabilities.

According to the questionnaire survey, positive responses accounted two-thirds of respondents with no negative response to this question. Remaining one third has some doubt, but it is expected that the sustainability for the cluster activities is high as the achievement ratio of outputs were high.

Judging from the above, the degree of achievement of the project purpose is high.

- (2) It is estimated that the outputs contributed to a high degree to the achievement of the project purpose.

The capability of IPC9 as a facilitator greatly influences the achievement of the outputs. The Output 2 is greatly related to achievement of the project purpose, and the other outputs are related to the CAMC activities. For the achievement of these outputs, IPC9 needs to function as a facilitator fully.

Concerning the outputs, as mentioned in (2) - 5) in Section 2.4.2.1, 5 outputs except Output 6 were produced as planned. The questionnaire survey has substantiated the achievement. Namely, the CAMC organization was established (Output 1), two training seminars were successfully conducted (Output 3), the mini library and Web site were completed (Output 4) and the joint work is under way (Output 5).

In response to the question of "Does each output contribute the achievement of the project purpose?" 90% of respondents said yes with no negative response except for Output 6.

Judging from the above, the outputs contributed to a high degree to the achievement of the project purpose.

(3) Other contributing factors

It is effective that the cluster activities were promoted based on the master plan drawn up by the following manners:

- Thai Shindanshi-ho (registered SME consultants) drew the master plan under the instruction of the JICA mission.
- The master plan was drawn up by the participatory PCM method.
- The action plan was made in the master plan by the participation method.

It is not difficult to converge on expectations of cluster members in a specific direction, because the master plan clearly specified the vision and objectives required to set such direction for the cluster. Setting the specific direction helps energize the cluster activities on a continuous basis.

### 2.4.3.3 Efficiency

As judged from the achieved outputs, the inputs were made efficiently.

(1) Experts (JICA, Thai coordinators and trainers) were provided properly.

The JICA experts gave instructions to IPC9 etc. as planned.

The Thai coordinators made coordination when the JICA mission was not in Thailand. IPC9 said that it was better to hire them on a full time basis over the entire project period so that the work was not interrupted. The JICA mission does not consider it appropriate from the interest enhancing IPC9's ownership.

There was no problem related to the selection of teachers. It is supported by responses to the questionnaire survey. Especially, teachers in charge of key subjects were highly evaluated, leading to the more favorable results of Output 3.

(2) Required materials (mini library) were purchased properly.

The mini library was formally inaugurated in January 2005. According to IPC9, there are less books on

automobiles than expected, and they plan to obtain them on their own. Considering the fact that CAMC members borrowed more than 100 books during the pilot project period, the opening of the mini library is fully justified. Therefore, Output 4 has been achieved.

(3) The counterpart was properly assigned, but all of them served for another assignment.

Five staff members of IPC9 were assigned to tasks relating to the implementation of the pilot project. However, they also continued to handle their original assignment. One of the reasons was, it was anticipated that there might be not sufficient work on the pilot project throughout the year. As IPC9 manages several cluster projects in the future, the workload will increase and an independent organization hiring full-time staffs will likely be established.

(4) Efforts were made to control the total project cost within the budget.

Originally, it was planned to hire the IT coordinator on a full time basis. But, after November she was hired during the field survey and on an as-required basis during the rest of the study period, because the Web site was completed ahead of schedule. While the automotive coordinator was originally planned to hire only for the period when the JICA mission was in Thailand, she was retained for a longer period in response to the need.. These examples show that the JICA mission made conscious efforts to minimize the project costs by controlling and varying the inputs to reflect the actual needs, in a belief that effective cost control was conducive to the success of the pilot project. IPC9 stated in the interview survey that the JICA budget was appropriate.

#### **2.4.3.4 Impact**

The following impacts are expected from project implementation and there is thus a high prospect for achieving the overall goal in three to five years:

(1) The prospects to achieve the overall goal are expected to be fairly high.

According to the questionnaire survey, 97% of respondents told that the overall goal would be achieved. The results of the interview survey of IPC9 indicate that there is a high prospect for achieving the overall goal, and IPC9 expected participation of additional BDS providers from universities, research institutes and organizations having special knowledge for the further of promotion of the overall goal.

Therefore, the number of BDS providers should be increased to secure the achievement of the overall goal. The strengthening of the capacity and network of BDS providers (overall goal) helps promote SME support and gives impacts on the promotion of SME development specified in the Thai National Project Implementation Plan.

(2) In interviews with the related parties, the following were pointed out as positive effects of the pilot project and its implementation:

1) Impact on policy making and development of laws, systems and standards:

In the interview survey, the Director General of DIP stated clearly that DIP would introduce the method of what the JICA mission employed and recommended, with some modification depending on local conditions in Thailand. It is evident that the actions and recommendations of the JICA mission have directly and/or indirectly influenced DIP's cluster development method, system, standards, etc. The same can be said for cluster development promoted by other ministries.

2) Impact on cluster activities and joint activities for regional industrial development:

Starting from the situation where no cluster activity was present, the cluster organization is now established and joint promotional activities are under way for regional industrial development. The CAMC activities are receiving great attention in Chon Buri and give positive impacts on other cluster projects throughout the country. Therefore, the pilot project is expected to give substantial impacts on other cluster activities and joint activities for regional industrial development.

3) Acknowledgement of effectiveness of industry-academies collaboration:

The CAMC members (SMEs) came to share a concern that they might be lagged behind the industrial development process in the future, because individual efforts and resources to keep up with industrial development are fairly limited. The CAMC plans to improve competitiveness of their members by promoting joint activities such as human resources development of SMEs, standardization of products, product development and R&D. Therefore, effectiveness of the joint activities is well recognized.

#### **2.4.3.5 Sustainability**

The prospect for the project's sustainability will improve through the enhancement of the pilot project.

- (1) Government support and system support promise to continue.
  - 1) Government support will continue after the end of JICA assistance.

DIP is expected to continue formal support since it considers cluster activities as a tool for SME promotion. Therefore, government support is expected to continue.
  - 2) The related regulations and legal system are expected to be prepared.

DIP is making an arrangement to deploy the cluster development program nationwide, which will start in the next fiscal year. BEED (counterpart of the JICA mission) supervises all the cluster activities that DIP promotes and allocates the budget for cluster development. Now, the next budget is being requested for the start of disbursement in October 2005. In addition to the involvement in the budget and organizational reforms, DIP documents the implementation of the cluster development policy and the management of the cluster program, etc. based on the recommendation of the JICA mission.
  - 3) Efforts are made to promote the continuation and expansion of cluster activities after the completion of the pilot project.

IPC9 has requested the budget for CAMC activities to DIP. The Cluster Development Dept. of IPC9 assists the cluster activities.
- (2) The facilitator has built organizational management capabilities and resources, although further capacity building is required .
  - 1) Organizational management capabilities (human resources allocation, decision making process, etc.) have been acquired to conduct activities after the completion of JICA assistance.

The CAMC Development Committee will actually plan and implement the cluster activities, and the Cluster Development Department in IPC9 will support their implementation. However, the five staff members in charge have other tasks and some are not fully qualified to perform necessary functions. With the prospect for the increase in the number of clusters, the department is expected to hire full-time staff members with necessary skills and knowledge and provide training for them if necessary.

In the questionnaire survey, 79% gave the positive response to this question with no negative response.
  - 2) The implementation agency (IPC9) has established a firm ownership of the project.

IPC9 now has a strong ownership to the project in consideration of its organization and activities, and



capability to arrange the budget acquisition from DIP.

According to the questionnaire survey that asked a question on a desirable budget source (multiple response allowed), the central government was most frequently cited (73% of all responses), followed by the provincial government (67%), a membership fee (48%), and an admission fee for activities (33%). Major portions of respondents expect government support while about half consider the membership fee as a financial source to maintain CAMC activities.

According to the interview survey of IPC9 and SMEs, CAMC members expressed the willingness to bear the costs if cluster activities produce effective results.

(3) There is a high prospect for effective propagation and adoption of transferred technology (e.g., the methodology for industrial cluster development as well as specific technology).

1) The method for technology transfer used in the pilot project is being accepted.

According to the interview survey, 94% of respondents accepted the method with no negative response. The interview survey of IPC9 indicates that it plans to apply the method used in the pilot project to other projects. The Director General of DIP shared the idea with IPC9.

2) Techniques used in the pilot project can be applied to other projects.

Techniques relating to cluster promotion, as used in the pilot project, are confined to the automotive and machinery parts sectors, and they are fully applicable to other projects.

## **2.5 Conclusion, Recommendations and Lessons Learned**

### **2.5.1 Conclusion**

(1) The pilot project was completed as planned and achieved the expected results.

According to the terminal evaluation, the pilot project has been implemented mostly in accordance with the plan and has substantially satisfied the five evaluation criteria including prospects for sustainability.

(2) "Participatory-type enlightenment approach" which was employed in the CSCD project was proven to be viable.

In Chon Buri Province, no systematic cluster approach and comprehensive cluster activities were undertaken. Now, the CAMC has built capability with the expected level through the implementation of

the pilot project. The satisfactory results stem from “participatory-type enlightenment approach” which was employed in the CSCD project and active cooperation by IPC9.

(3) CAMC completed the initial stage of cluster activities and move forward to the next step.

Generally, the CAMC has completed the cluster activities under the “assistance and guidance of public sectors including donors” and reached to the level of execution capability that it can promote the cluster activities by itself. CAMC, in cooperation with IPC9, is expected to act as the leading cluster organization in Thailand.

### **2.5.2 Recommendations**

(1) CAMC should continue the pilot project.

It is demonstrated that this pilot project is a viable and effective tool for SME development. Therefore, CAMC is expected to implement the pilot project on a continuous basis with necessary enhancement.

(2) CAMC should draw up a short-term action plan to realize medium and long term plans for cluster activities.

CAMC has already developed a medium- and long-term framework including the vision, mission, strategies and projects. In order to realize the medium- and long-term plan, short-term programs/projects are indispensable. It is proposed that CAMC should draw up a short-term action plan using PCM and PDM.

(3) CAMC should raise the level of the whole CAMC members by promoting industry-academia-government collaboration.

The pilot project has successfully laid the foundation of industry- academia-government collaboration, and within the framework human resources development and joint product development initiatives are under way. The network of private enterprises, universities and governments should be strengthened and the collaboration should be promoted to raise the level of execution capability of CAMC.

- (4) CAMC should select additional BDS providers as required.

IPC9 should take a lead in selecting additional BDS providers by hearing ideas of CAMC members. BDS providers are not necessarily located in Chon Buri, but they can be selected from related organizations around Bangkok.

- (5) CAMC should organize sub-committees within the CAMC Promoting Committee.

Now, CAMC members are as many as 33 organizations and companies, and their needs can be diverse. Since it is difficult to fully meet the diverse needs of each organization, CAMC should organize sub-committees according to the objective to ensure smooth operation of CAMC.

- (6) The results of CAMC activities should be published.

It is recommended that DIP and IPC9 play a leading role in publishing the outcome of this pilot project. It was implemented based on the master plan and used a new cluster development method. Publishing what CAMC has accomplished would be helpful for those who plan SME development by the cluster promotion approach in other Thai regions as well as implement cluster activities overseas.

### **2.5.3 Lessons learned**

- (1) The success of the pilot project was greatly attributed to human resources.

The success of the pilot project is attributable to the capability, leadership and enthusiasm of key personnel of IPC9 as well as CAMC members. To ensure the success of the future similar projects, the JICA mission should select key personnel of the project at an early stage, have a good understanding of the situation surrounding the project for effective implementation.

- (2) Two Thai coordinators who assist JICA mission contributed much to the good results.

Two Thai coordinators carried out their duties efficiently under the guidance of JICA mission. After JICA mission left Thailand, they contributed to the smooth implementation of the pilot project by following up the project. It is important to find coordinators who play a pivotal role in the project implementation process, through the elaborate recruitment process.

- (3) To promote cluster activities effectively, an emphasis should be placed on the buildup of the following system:
- a) Thai people should take a leading part in preparation of a master plan that specifies the vision, mission and strategy for cluster development and that can be used as guidance for future cluster activities.
  - b) The action plan contained in the master plan should be development by using a participatory approach such as PCM in order to ensure maximum enhancement of the ownership to the project by cluster members.
  - c) Logframe (PDM) is designed for implementation of the project so that the project purpose, output, input and activities are clarified.
  - d) An effective networking method should be explored.
  - e) An organization responsible for promotion of cluster activities should be established.
  - f) The requisite for the cluster activities should be documented (regulations, the memorandum of understanding covering the collaboration among industry, academia and government, etc.)
  - g) Based on the above, cluster activities should be implemented step by step while promoting understanding of present and potential stakeholders.

**Attachment 2-1 Attendant list for Workshop for Planning and APCB's Team Building  
(24-25 AUG., 2004, At the Horseshoe Point, Pattaya, Chonburi)**

No.	Sector	Given name	Surname	Organization
1	<b>Financial</b>	Mr. Sommit	Jantrasuksan	Branch Manager, SME Bank
2	<b>Government</b>	Mr. Chuchai	Setuwang	Chief of Provincial Industry Office
3		Mr. Nisai	Sukhara	Officer
4		Miss. Noppawan	Mongkolkaew	Investment Promotion Officer
5		Mr. Viriya	Montri	Coordinator, TAI
6		Mrs. Thitiboon	Desaputra	Labor Academic
7		Mr. Siriwat	Teeruntayatan	Chief of Industry Promotion
8		Mr. Wattana	Wattanasak	Labor Academic
9	<b>Enterprises</b>	Mr. Komgrich	Phongratanadechachai	President
10		Mr. Sakol	Kumprasit	Production Manager
11		Mr. Sombat	Temiyasathit	Deputy Managing Director
12		Mr. Noppong	Nikhomchipaseat	Managing Director
13		Mr. Samrit	Sawangkam	Senior Manager
14		Mrs. Penthip	Pornjaded	President of ATSME
15		Mr. Kampol	Wunwiryakith	Assistance Manager
16		Mr. Veerapoj	Puatrakul	Production Manager
17		Mr. Pongsak	Umnung	
18	<b>Academy</b>	Mr. Samruay	Mahapram	Assistant to Director
19		Asst. Prof Wirogana	Ruengphrathuengsuka	Dean
20		Mr. Ekachai	Meanjaikra	Chief
21		MR. Kiatchai	Sariyasuntorn	Chief of Dual System Dept.
22		Dr. Suchart	Tontanadacha	Assistant Dean
23	<b>DIP/IPC9</b>	Ms. Patcharin		PIC, DOI
24		Ms. Suimol		PIC, DOI
25		Mr. Surasith	Bunyabhisand	Director of IPC9
26		Ms. Wanpen	Ratanakangwal	Deputy Director of IPC9
27		Mr. Sirichai		General Manager of IPC9
28		Ms. Papornchanok	Thanusang	PIC, IPC9
29		Ms. Somkid	Muangkaew	PIC, IPC9
30	<b>JICA</b>	Mr. Shozo	Inakazu	Leader
31		Mr. Kunio	Otsuka	Cluster No.1
32		Mr. Satoru	Arai	Diagnosis System No.1
33		Ms. Nipawan	Meemark	Coordinator
34		Ms. Wipada	Niwat	Interpreter
35		Mr. Shigeaki	Yamamoto	Observer (AOTS)
36	<b>Organizer</b>	Ms. Pornvarin	Nutravong	Trainer
37		Mr. Gumthon	Teemaphun	Trainer

## Attachment 2-2 BDS Provider List for Pilot project

### BDS provider for pilot project (1/10)

<b>Name of Organization:</b> Burapha University
<b>Type of organization, Control organization:</b> University/Ministry of University Affairs
<b>Address:</b> T.Saensuk A.Muang Chonburi 20131
<b>Contact(PIC, TEL, etc.)</b> Dr. Wirogana Ruengphrathuengsuka, Ph. D., Asst. Prof. and Dean, Faculty of Engineering, TEL: (66-38) 735900 Ext. 3309, FAX: (66-38) 745806
<b>No. of employee (by type of job)</b>
<b>Established year :</b> 1990, 1994 (Faculty of Engineering)
<b>Purpose of establishment and mission:</b> To establish high education system in engineering field at eastern Thailand
<b>Type of BDS :</b> Education/training, Joint product development between industry, academies and governments 1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others (Product development)
<b>Facility and equipment for BDS etc.:</b> Length calibration machine, Measurement machine (3-D measurement machine, Profile projector, Roughness Tester, Roundness Tester) , Machine tool (General-purpose machine tool, NC machine, etc.)
<b>Past major activities:</b> At present, students in the Faculty of Engineering are required to complete the 4 years of course work to get the degree of Bachelor of Engineering. The Faculty of Engineering is divided into 5 major Departments: 1. Department of Chemical Engineering 2. Department of Industrial Engineering 3. Department of Civil Engineering 4. Department of Electrical Engineering 5. Department of Mechanical Engineering  Students join the internship that they work for companies for 1-3 months. The university is equipped with machin tools and plans to make proto type of products for commercial sales. It also operates Calibration Center for Industry by cooperation of Mitsutoyo and make calibration of "length" of measurement equipment.
<b>Actual activities for pilot project:</b> Advice and support the CAMC in technical knowledge and background theory. Provide the lecturers and teachers to share experience with SME. Develop new products with SME.
<b>Prospects and improvement issues as BDS providers from now on:</b> In addition to the above activities, Burapha University applies to the Thai Research Foundation for funds of IRPUS (Industry Research Projects under Graduate Students). If approved, Burapha University plans to develop rubber dumper together with Parts Manufacturing (1999). Collaboration agreement was in effect between industry, academies and governments.

**BDS provider for pilot project (2/10)**

<b>Name of Organization:</b> Eastern College of Technology (E-TECH)
<b>Type of organization, Control organization:</b> Vocational education (private)/Under the E-TECH Co.,Ltd.
<b>Address:</b> 231 M.2 T.Nongtumluong A.Panthong Chonburi 20160
<b>Contact (PIC, TEL, etc.) :</b> Mr. Samruay Mahapram, TEL: 0-3820-6081 ext 164, FAX: 0-3878-9093
<b>No. of employee (by type of job):</b> 374 teachers and staffs, ~6,500 students
<b>Established year:</b> 1983
<b>Purpose of establishment and mission:</b> To establish high education system in engineering field at eastern Thailand
<b>Type of BDS:</b> Education/training, Joint product development between industry, academies and governments 1. Administrative service <u>2. Education</u> 3. Vocational training 4. Financing <u>5. Technical instruction</u> 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others (Product development)
<b>Facility and equipment for BDS etc.</b> Engine workshop, mechanic workshop, electrical workshop
<b>Past major activities:</b> There are 3 main objectives for E-TECH establishing: 1. To be sufficient in the building, classroom, learning equipment. 2. To provide the qualify lecturer, teacher for each subject. 3. To yield high quality students for community. ETECH is the local vocational and technical school for Eastern students.
<b>Actual activities for pilot project:</b> Develop the prototype products for SME and try to make new innovative prototype products to serve local need. Collaborate SME by providing training courses and testing standards to develop the technical skill for CNC operator.
<b>Prospects and improvement issues as BDS providers from now on:</b> In addition to the above activities, E-TECH is going to develop a metal chip compacting machine together with Asia Precision. Collaboration agreement was in effect between industry, academies and governments.

**BDS provider for pilot project (3/10)**

<b>Name of Organization:</b> Thai Austrian Technical College (Suttaheep Technical College)
<b>Type of organization, Control organization:</b> Vocational education/Ministry of Education
<b>Address:</b> 193 Sukumwit Road Najaomtien Sattahip Chonburi 20250
<b>Contact (PIC, TEL, etc.):</b> Mr. Wachara Anusarsanakun, Director, TEL: 66 3823 8398, FAX: 66 1830 9187
<b>No. of employee (by type of job)</b>
<b>Established year</b> 1969
<b>Purpose of establishment and mission</b> Technical college of Suttaheep District
<b>Type of BDS:</b> Education/training, Joint product development between industry, academies and governments 1. Administrative service <input type="checkbox"/> 2. Education <input checked="" type="checkbox"/> 3. Vocational training <input type="checkbox"/> 4. Financing <input type="checkbox"/> 5. Technical instruction <input checked="" type="checkbox"/> 6. Activities for unions/associations <input type="checkbox"/> 7. Consultation <input type="checkbox"/> 8. Distribution/logistics <input type="checkbox"/> 9. material supply <input type="checkbox"/> 10. Supply of infrastructures <input type="checkbox"/> 11. Others (Product development) <input type="checkbox"/>
<b>Facility and equipment for BDS etc.</b> Metallurgy lab, CNC lab, Machine shop, CAM lab, Auto mechanic lab.
<b>Past major activities:</b> The Thai-Austrian Technical College (The Sattaheep Technical College) is under cooperation with the Austria's government since 1969. Once they got the budget of 200 Million Baht to develop the Thai technical education in this region. Thai-Austrian Technical College is working closely with the BMW to do the project, with Toyota to make the instruments and with the Asian University (AUST) to train the AUST students. In the past the Thai-Austrian Technical College never joined any program with IPC9, only meets each other in the Provincial meeting. Due to the need for more college-trained personnel for implementation of the Government's Eastern Seaboard Development Project to industrialize the area, Thai-Austrian Technical College expands more in curriculum to serve the local industry.
<b>Actual activities for pilot project:</b> To be more effectiveness in cooperation with Thai SME, the Thai-Austrian Technical College provides the senior students in diploma program to register the subject called "practice training" at the Factory. The dual system education is to study in the class 50% and go to the factory 50% (to practice 1.5 year for the certificate student(total 3 years), 1 year for high certificate student(total 2 years)). For pilot project cooperation, the Thai-Austrian Technical College can support and help SMEs in terms of tool and equipment training for SME's labour.
<b>Prospects and improvement issues as BDS providers from now on:</b> Same as the above activities. Collaboration agreement was in effect between industry, academies and governments.



**BDS provider for pilot project (4/10)**

<b>Name of Organization:</b> Small and Medium Enterprise Development Bank of Thailand - Chonburi Branch
<b>Type of organization, Control organization:</b> Development bank/Ministry of Finance
<b>Address:</b> 51/7-8 MOO 2T. SAMED A.MUENG CHONBURI 20000
<b>Contact (PIC, TEL, etc.)</b> Mr.Sommitr Jantarasuksan(Branch Manager), Mr. Nikom Jimthaisong, TEL: 0-3878-4171, FAX: 0-3878-4172
<b>No. of employee (by type of job):</b> 11 persons
<b>Established year:</b> 2002
<p><b>Purpose of establishment and mission:</b></p> <p><b>Vision:</b> To be the leading bank in providing quality service for strengthening and development of SMEs, in the drive towards sustainable economic growth, and to be a pillar of good governance, efficiency and strength.</p> <p><b>Mission:</b> 1. To support the strengthening and enhancement of competitiveness of strategic SMEs which are the foundation of the national economy. 2. To create financial services which are responsive to the needs of strategic SMEs. 3. To strive for efficiency and good governance in all personnel and work processes. 4. To develop a network of strategic alliances with public and private-sector, domestic and overseas, in order to draw upon the knowledge and expertise in SME and economic development. 5. To ensure widest public awareness of the Bank's roles, responsibilities and good repute. 6. To create and develop new entrepreneurs, in collaboration with alliances.</p>
<p><b>Type of BDS</b></p> <p>1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )</p>
<b>Facility and equipment for BDS etc. (Mr.Sommit Jantrasuksan)</b>
<b>Past major activities</b> see detail in "mission" , the present service such as: Fast track service, loan for franchisor-franchisee, the "Thai cuisine to the world" loan, venture capital service, packing credit for exporter, factoring service and the OTOP loan.
<b>Actual activities for pilot project</b> Advise and consult SMEs about their service.
<b>Prospects and improvement issues as BDS providers from now on:</b> In addition to the above activities, SME Bank plans to provide financing for project development by collaboration between industry, academies and governments.

**BDS provider for pilot project (5/10)**

<b>Name of Organization:</b> Provincial Industrial Office of Chonburi (PIO)
<b>Type of organization, Control organization:</b> Ministry of Industry
<b>Address:</b> 97/125 M.1 Rd.Sukuvit T.Samet A.Muang Chonburi
<b>Contact (PIC, TEL, etc.):</b> Mr. Chuchai Sintoowong, Director, TEL: 0-3827-4124, FAX: 0-3827-6851
<b>No. of employee (by type of job):</b> 30 persons (4 Dept.: Plan/Accounting, Industry (Factory), Industrial promotion (Information management), Primary industry (Mining))
<b>Established year</b>
<b>Purpose of establishment and mission:</b> Registration of company and certification of company establishment, Conducting seminar and providing new technology information, Providing factory data and useful information for factory, Support of enterprises, Application of utilities
<b>Type of BDS</b>
1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )
<b>Facility and equipment for BDS etc.</b>
<b>Past major activities:</b> PIO provides enterprises in Chon Buri with services mentioned in "Purpose of establishment and mission" above.
<b>Actual activities for pilot project:</b> PIO is under consideration how to provide BDS by participating in seminars and CAMC meetings.
<b>Prospects and improvement issues as BDS providers from now on:</b> To provide CAMC with useful information and conduct related seminars for CAMC.

**BDS provider for pilot project (6/10)**

<b>Name of Organization:</b> The Federation of Thai Industries, Chonburi Chapter (FTI)
<b>Type of organization, Control organization:</b> Industrial federation
<b>Address:</b> 67 M.1 Rd.Sukuvit T.Samet A.Muang Chonburi
<b>Contact (PIC, TEL, etc.):</b> Mr.Surachai Chaitrakoonthong, Chairman, Tel: 0 3828 8507 Fax: 0 3828 8508 Ms.Nongnuch Siripanyachan (FTI Officer)
<b>No. of employee (by type of job):</b> 22 persons in board of committee, FTI(Chonburi)member ~2,065 companies
<b>Established year:</b> 1990
<b>Purpose of establishment and mission:</b> Its objective is to be a center for industrial development, co-ordination and problem solving, to support the Provincial Joint Public-Private Sectors Consultative Committee (JPPCC), and to develop Chon Buri and the Eastern region of Thailand. The working group of the Chapter has pooled efforts to promote and develop industry through co-operation between the public and private sectors.
<b>Type of BDS:</b> 1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )
<b>Facility and equipment for BDS etc.:</b> Database and useful information of Chonburi such as: Chonburi's physical info and industry, geographical information, resource, economics, basic facilities, transportation and communication, economy trend, problem of industrial development, record of factory and registered companies in Chonburi, Eastern region's strategic plan for 2004-2007, blueprint for change and some service. Factory Directory in Chonburi.
<b>Past major activities:</b> The Chapter has arranged training for members and entrepreneurs in co-operation with various government agencies. Annual activities include factory visits in which entrepreneurs have a chance to see modern technology and exchange experiences.
<b>Actual activities for pilot project:</b> The Chapter has succeeded in serving as a center for members, industrialists, government agencies and the private sector to brainstorm and share their expertise, experiences and opinions to promote industry. The growth and success of the Chon Buri Chapter could not have happened without this co-operation.
<b>Prospects and improvement issues as BDS providers from now on:</b> To conduct seminars for CAMC

**BDS provider for pilot project (7/10)**

<b>Name of Organization:</b> Association for the Promotion of Thai Small and medium Entrepreneurs (ATSME Chonburi)
<b>Type of organization, Control organization:</b> Association of SMEs in Chon Buri
<b>Address:</b> 67 M.1 Sukuvit Rd. T.Samet A.Muang Chonburi
<b>Contact (PIC, TEL, etc.):</b> Mrs.Penthip Pornjaded, TEL: 0 1861 3646 FAX: 0 3827 5774
<b>No. of employee (by type of job):</b> Member of the 94th generation= 232 companies, Total 1st-94th ~2,800 persons.(Thailand)
<b>Established year</b>
<b>Purpose of establishment and mission:</b> 1. To be the association of entrepreneur from Chonburi and neighbour province in exchange of working experience and business relation between each other. 2. To co-operate with government section and other private organization to improve Chonburi's economy and business, etc.
<b>Type of BDS:</b> 1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )
<b>Facility and equipment for BDS etc.:</b> Directory of ATSME Thailand, Directory of Chonburi businessman.
<b>Past major activities:</b> The association of SME in Chonburi helps each other to continue their business, to share the idea and exchange each experience in business. It also conducts some activities together to improve relationship among members and extends the knowledge to other ATSMEs in other regions.
<b>Actual activities for pilot project:</b> Some ATSME members become CAMC members and they also help the other company to understand the CAMC activities.
<b>Prospects and improvement issues as BDS providers from now on:</b> To continue the above

**BDS provider for pilot project (8/10)**

<b>Name of Organization:</b> Chonburi Regional Institute for Skill Development (CRISD)
<b>Type of organization, Control organization:</b> Department of Labour Skill Development, Ministry of Labour
<b>Address:</b> 145 M.1 T.Nongmaidaeng A.Muang Chonburi 20000
<b>Contact (PIC, TEL, etc.):</b> Mr.Seree Sengrath, Mr,Chartchai Turapakpiboon, TEL : 0 3827 6445-6 Fax:0 3827 6445
<b>No. of employee (by type of job):</b>
<b>Established year:</b>
<b>Purpose of establishment and mission:</b> Provide necessary training for job skill development, Test and provide job skill certification
<b>Type of BDS:</b> 1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )
<b>Facility and equipment for BDS etc.:</b> CNC lathe, CNC milling m/c, Machining center, CDM, EDM, Arm type robot, General-purpose machine tools, Measuring equipment, etc.
<b>Past major activities:</b> To be the institute where the labour can improve their skill of working. CRISD provides the course for each level. Courses for workers for skill development have 5 fields: construction workers, motor workers, machine tool workers, welding workers, electric/electronics workers. During October 2003 and August 2004, 2,200 workers completed skill development training course and 2,050 workers were tested for skill certification.
<b>Actual activities for pilot project:</b> CRISD investigates how to train skilled workers and skill tests.
<b>Prospects and improvement issues as BDS providers from now on:</b> To conduct skilled worker training and skill tests

**BDS provider for pilot project (9/10)**

<b>Name of Organization:</b> Industrial Estate Authority of Thailand (I. E.A.T.)
<b>Type of organization, Control organization:</b> Ministry of Industry
<b>Address:</b> 5th Floor, Room A500, Thai-German Institute, 700/1 Moo 1, T.Klongtamru, A.Muang Chonburi 20000
<b>Contact (PIC, TEL, etc.) :</b> Mr. Wiwat Summachewawat, Amata nakorn & Amata City Industrial Estate Director, TEL: (038) 459101, FAX: (0389 459100)
<b>No. of employee (by type of job):</b>
<b>Established year:</b> 1972 (Main body)
<b>Purpose of establishment and mission:</b> <u>Vision:</u> Leader in Providing Strategic Production and Logistics Bases With Globally Competitive Edge and Enhancement Quality of Life and Nature <u>Purpose:</u> 1. To establish industrial estate, promote and support private sector or government agencies in setting up industrial estates. 2. To set up and provide services for the facility and utility systems necessary for industrial and business operation. 3. To promote and support the private sector to invest in and provide services for the facility and utility systems necessary for industrial and business operation. 4. To organize and manage different systems for environmental management and emergency prevention and response. 5. To grant permission and approval for business operation inside the industrial estate and to offer additional privileges, incentives, and facilitation to business operation and practices.
<b>Type of BDS:</b> Administration of industrial estate 1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction 6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply 10. Supply of infrastructures 11. Others ( )
<b>Facility and equipment for BDS etc.:</b>
<b>Past major activities:</b> IEAT is the government's mechanism for national development, attracting investment and generating employment. IEAT has mechanism for spreading growth and economic progress throughout the country. IEAT has organized appropriate areas for factories to be grouped in an orderly manner. This makes it easier to control and look after the factories, and helps to protect the environment. Furthermore IEAT has set rules and regulations to oversee, and manage factories in all industrial estates. IEAT has created a new dimension of the Knowledge - based Society, by integrating education, research, and development into the industrial estates. This markedly encourages human resource development in the private sector. IEAT is also determined to provide learning opportunities to the surrounding communities. IEAT gives priority to instill a sense of business ethics, through corporate responsibility for treating waste water and solid wastes from the production process to ensure industry cooperation. IEAT is responsible to strictly conduct the above task in the industrial estate.
<b>Actual activities for pilot project:</b> IEAT investigates how to train skilled workers and skill tests.
<b>Prospects and improvement issues as BDS providers from now on:</b> To establish relationship and make coordination between enterprises in Amata Nakorn and CAMC

**BDS provider for pilot project (10/10)**

<b>Name of Organization:</b> Board of Investment Leamchabang (BOI)
<b>Type of organization, Control organization:</b> Ministry of Industry
<b>Address:</b> 46 Moo5, T.Tungsukla, A.Sriracha Chonburi 20230
<b>Contact (PIC, TEL, etc.):</b> Mrs.Waraporn Cheisa-ard, Ms.Noppawan Mongkolkeaw Tel: 0 3849 0478 Fax: 0 3849 0479
<b>No. of employee (by type of job):</b>
<b>Established year:</b>
<p><b>Purpose of establishment and mission:</b></p> <p>&lt;Investment Services&gt;</p> <p>(1) Assistance in setting up a business</p> <p>(2) Providing information on investment opportunities</p> <p>(3) BUILD: Industrial Subcontracting</p> <p>(4) Assistance by foreign experts</p> <p>(5) One Stop Service Center</p> <p>(6) ASEAN Supporting Industry Database (ASID)</p> <p>(7) Foreign Experts Services Unit</p> <p>(8) Investment matchmaking</p> <p>(9) Investor Club Association</p>
<p><b>Type of BDS:</b></p> <p>1. Administrative service 2. Education 3. Vocational training 4. Financing 5. Technical instruction</p> <p>6. Activities for unions/associations 7. Consultation 8. Distribution/logistics 9. material supply</p> <p>10. Supply of infrastructures 11. Others ( )</p>
<b>Facility and equipment for BDS etc.</b>
<p><b>Past major activities:</b> The Board of Investment is working to be your one-stop shop for service. The BOI helps investors in three key ways: To reduce the risks associated with investment, to reduce initial investment costs and to improve the overall rate of return on investment; and to provide support services at all times.</p>
<p><b>Actual activities for pilot project:</b> BOI provides information about sourcing and subcontracting opportunities, the Investor Club Association, a private organization which further serves the needs of the investment community, and the BOI's efforts to support outbound investment by Thai businessmen.</p>
<b>Prospects and improvement issues as BDS providers from now on:</b> To conduct seminars

## Attachment 2-3 Comments on Questionnaire Survey at the 2nd Training Seminar

Reply Person			Q. No.	1. Responsibility in Company	3. Impression	5. Interested items	8-2 Theme to be taken in future
1	Co.	A-Company	Breakdown and preventive maintenance of machinery	Good point: Good textbooks on activities and good lecturer Bad point: Insufficient lecture time over many contents	8 main activities in implementation of TPM		
	Title	Leader					
	Position	Maintenance					
2	Co.	A-Company	Breakdown and preventive maintenance of machinery				
	Title	Leader					
	Position	Maintenance					
3	Co.	A-Company	Maintenance control and coordination of machinery	Implementation of 8 main activities interests me. More explanation on practical PM should be added.	8 main activities in implementation of TPM	1. Machine analysis by "Vibration measurement" 2. Implementation of predictive Maintenance	
	Title	Engineer					
	Position	Maintenance					
4	Co.	B-Company	Electric system	1. Unclear textbooks 2. I want copy of what lecturer wrote on white board, because writing is not necessary during the lecture.		Competitive marketing	
	Title	Engineer (Technology)					
	Position						
5	Co.	B-Company	Total management (administration)		Way of implementation based on theory		Collection and analysis of data in implementation
	Title	Deputy MD					
	Position						
6	Co.	B-Company	Production system management	Good point: Good atmosphere, Efforts to give example (Lecturer) Bad point: Examples are not practical. The lecturer said the cases are not applicable to SMEs.	QM –Matrix		1. KAIZEN 2. Continuous improvement
	Title	Assistant Manager					
	Position	Production Dept.					



7	Co.	C-Company	Engineering design, Quality control	Good point: Supply of basic TPM knowledge to create practical idea Proposed point: Giving TPM success example with company name and success reasons	Way of thinking for increase of production quality	1. KAIZEN 2. Improvement of productivity
	Title	Engineer				
	Position	Product Engineer				
8	Co.	C-Company	Production management, Production process design	Good point: Concept and contents of seminar which lecturer prepared Proposed point: Measures should be taken that participants of all levels can understand the seminar by matching example with theory.	All theory and concepts that can be used in practical work	6 $\sigma$ , SAFETY, PROBLEM SOLVING
	Title	PROCESS ENGINEER				
	Position	ENGINEER				
9	Co.	C-Company	Production management, Maintenance, Quenching of parts	Presentation was good, but the lecture should start as scheduled.	Self-maintenance, 16 loss items, 8 main activities	All contents in textbooks
	Title	Manager				
	Position	Production Dept.				
10	Co.	D-Company		Good seminar, but workshop type seminar might be better to prevent participants from sleeping.	Record after checking, Maintenance based on planning	Production plan, product inspection, HRD
	Title	M.D				
	Position					
11	Co.	E-Company	Administration, Management	- Much contents over short time - Workshop should be taken. The seminar should be divided into several times according to the contents.	Workshop concerning KAIZEN	Workshop for KAIZEN implementation Workshop on problem solving and judgment
	Title	MD				
	Position					
12	Co.	F-Company	Problem shooting and control in production control	Main activities of TPM	Maintenance of machinery	Maintenance of machinery
	Title	Manager				
	Position	Production Dept.				
13	Co.	F-Company	Management of employees and wages	Good point: Program of the course	Constitution of self-maintenance system, Promotion of proposal by employees (Stimulation of interest in proposal)	Human resources development within organization which benefits all cluster members
	Title	HR Manager				
	Position	Human Resources Dept.				

14	Co.	F-Company	Production-related information control	Comparison between large companies and SMEs; I understand how large companies manage and deal with SMEs.	Maintenance of machinery	Maintenance of machinery
	Title					
	Position	Production Dept.				
15	Co.	A-Academy	Dean		Improvement of competitiveness depending on classification such as leader of each department and management	KAIZEN of specific subjects, Self-maintenance
	Title	Dean				
	Position	Faculty of Engineering				
16	Co.	G-Company	Company management including factory and marketing		Activities for team building, Work through team-work	Self-maintenance, Model for TPM implementation
	Title	MD				
	Position	Administration				
17	Co.	A-BDS Provider	Planning, Tech. development and tech. control in factories	Good points: Schedule, Textbooks; Lecturer Proposal: Bag to keep textbooks is necessary.	Work analysis for education	Self-maintenance, Maintenance based on planning
	Title	Leader				
	Position	Tech./Labor Capability Develop. Team, Factory Engineers Dept.				
18	Co.	H-Company	Accounting, Filing of documents		Implementation of TPM in office work	Self-maintenance
	Title					
	Position					
19	Co.	H-Company		Good in total		QC, Maintenance based on planning
	Title					
	Position					
20	Co.	A-Bank	Providing advice, Support in business fund raising			<ul style="list-style-type: none"> <li>- Production cost reduction (technology)</li> <li>- Quality control</li> <li>- KAIZEN</li> </ul>
	Title					
	Position	Business Development Office, Chonburi				

21	Co.	A-BDS Provider	Manager of training center	What is taught is sufficient, but the time is not enough.	Self-maintenance, Maintenance based on planning	
	Title	Training Expert				
	Position	International Standard Achievement Training Center				
22	Co.	B-Academy	Teacher (CMC and CAD technology)		Maintenance based on planning	
	Title	Teacher 2, level 7				
	Position	Dept. of Production Technology				
23	Co.	I-Company	Adviser	Good in total	If maintenance and problem solving are well-done, significant cost reduction can be achieved.	Maintenance based on planning
	Title	Manager				
	Position					
24	Co.	J-Company	In charge of purchase and accounting			
	Title	Purchase + Accounting				
	Position	Dept. of Purchase + Accounting				
25	Co.	K-Company	Production management		Self-maintenance,	
	Title	Manager				
	Position	Production Dept.				
26	Co.	K-Company	Machinery	Good point: Location and period for seminar	8 main activities	Marketing plan
	Title	Manager				
	Position					
27	Co.	L-Company	Production programming, Schedule control	Good point: Knowledge obtained from lecturer, Free charge, Structuring good relations within group Proposed point: Simple words should be used	1. PACD	Seminar concerning versatile theme
	Title	Manager				
	Position	Production Dept.				

28	Co.	H-Company	(Terminology is difficult, especially English terms.)	8 main activities (8 pillars)	Subjects related to work of other field, quality and KAIZEN
	Title	M.D.			
	Position				
29	Co.	E-Company	All items	Improvement of productivity Excellent management	
	Title	Manager			
	Position	Production Dept.			
30	Co.	B-Academy	Good point: I can understand the concept of TPM. Proposed point: If time allows, the program for participants to make TPM activities should be added.	All subjects for business development	
	Title	Teacher 2, level 7			
	Position	Dept. of Production Technology, Labor evaluation, Data analysis			
31	Co.	M-Company	Teacher of Production Technology Dept.  Check of jobs in all departments	Marketing plan for SMEs which enable to secure some shares among large enterprises	
	Title	Manager			
	Position				
32	Co.	F-Company	Good point: 8 main activities Consideration: Other subjects are difficult to be used without some KAIZEN.	8 main activities which can be used in our factory	
	Title	Manager			
	Position	Production Dept.			

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**Attachment 2-4 MEMORANDUM OF UNDERSTANDING ON TECHNICAL COOPERATION**

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The objective of this agreement is to promote and support automotive and machinery parts cluster in Chonburi province. The agreement is made among industries, academics and government as follows:

1. Industrial Promotion Center Region 9, Department of Industrial Promotion which located at 67 Moo 1, Sukhumvit Road, Samed, Muang, Chonburi led by Mr.Wanchai Ratchadamas, Director of IPC 9.
2. Chonburi Automotive and Machinery parts Cluster – CAMC) which located at 67 Moo 1, 6<sup>th</sup> Floor, Industrial Promotion Center Region 9 Building, Sukhumvit Road, Samed, Muang, Chonburi led by Mr. Sombat Temeyasathit, Chairman of CAMC.
3. The Faculty of Engineering, Burapa University which located at 169 Bangsaen Road, Sansuk, Muang, Chonburi led by Asst. Prof. Dr. Wirogana Ruengphrathuengsuka, Dean of Faculty of Engineering, Burapa University.
4. Sattahip Technical College which located at 193 Moo 3, Nachomtien, Sattahip, Chonburi led by Mr.Watchara Anusarsanakun, Director of Sattahip Technical College.
5. Eastern College of Technology (E-Tech) which located at 231 Moo 2, Nongtamlueng, Panthong, Chonburi led by Mr.Prasert Klinchoo, Director of E-Tech.

The scope of collaboration is proposed as follows:

1. Human resource development including training and seminar
2. Technical instruction and consultation
3. Preparation of skill certification system
4. Internship
5. Development of parts, components and equipment
6. Research and Development (R&D) of new parts, components and equipment
7. Exchange of related information
8. Other subjects that IPC9, University and Company request

All parties listed above agree to make collaboration and coordination in terms of techniques, academics, manufacturing, innovation as well as human resources so as to strengthen the competitiveness of automotive and machinery parts cluster in Chonburi province towards their goals.

This agreement is signed in 19 May 2005.



(Mr. Sombat Temeyasathit)  
Dean of Faculty of Engineering  
Chairman  
CAMC



(Asst. Prof. Dr. Wirogana Ruengphrathuengsuka)  
Burapa University



(Mr. Watchara Anusarsanakun)  
Director  
Sattahip Technical College



(Mr. Prasert Klinchoo)  
Director  
Eastern College of Technology (E-Tech)



Mr. Wanchai Ratchadamas  
Director  
Industrial Promotion Center Region 9

(Mr. Pisit Khetphasook)  
Governor  
Chonburi Province  
Witness

(Mrs. Nataya Onsuwan)  
Deputy Director-General  
Department of Industrial Promotion  
Witness

Attachment 2-5 Performance Table

Question	Evaluation Questions		Criteria & Method for Judgment	Required Data	Information Source	Data Collection
		Sub-question				
Verification of performance	(01) Was the input conducted as planned?		Achievement rate (over 70%)	Planned and actual data	PP Report & PP records	Review of the report/records
	(02) Was the output produced as planned?		Achievement rate (over 70%)	Planned and actual data	PP Report & PP records	Review of report/records
	(03) Will the project purpose be achieved?		Evaluation by JICA mission	<ul style="list-style-type: none"> <li>Target and prospect</li> <li>Replies of questionnaire survey</li> </ul>	<ul style="list-style-type: none"> <li>PP Report &amp; PP records</li> <li>2<sup>nd</sup> Seminar</li> </ul>	<ul style="list-style-type: none"> <li>Review of report/records</li> <li>Questionnaire survey</li> </ul>
	(04) Are there prospects that the overall goal will be achieved?		Evaluation by JICA mission	<ul style="list-style-type: none"> <li>Target and prospect</li> <li>Replies of questionnaire survey</li> </ul>	<ul style="list-style-type: none"> <li>PP Report &amp; PP records</li> <li>2<sup>nd</sup> Seminar</li> </ul>	<ul style="list-style-type: none"> <li>Review of report/records</li> <li>Questionnaire survey</li> </ul>
Verification of implementation process	(05) Were the activities implemented as planned?		Comparison of Before & After	Planned and actual data	PP Report & PP records	Review of report/records
	(06) Were there any problems in the method for technology transfer?		Evaluation of replies/views by JICA team	<ul style="list-style-type: none"> <li>Replies of questionnaire</li> <li>Views of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>
	(07) Were there any problems in the project management system?		Evaluation by JICA mission	Collaboration between DIP, CAMC, IPC9 and JICA team	PP Report & PP records	Review of the report/records
	(08) Does the project have a high recognition in the implementing agency and counter part?		<ul style="list-style-type: none"> <li>Comparison of With &amp; W/O</li> <li>Comparison of Before &amp; After</li> </ul>	Recognition of major concerned organizations	2 <sup>nd</sup> Seminar etc.	Questionnaire survey
	(09) Was a suitable counter part assigned?		Evaluation by JICA mission	Performance of DIP & IPC9	PP record of JICA mission	Review of the record
	(010) Is the degree of participation of the target group and related organizations in the project high?		<ul style="list-style-type: none"> <li>Comparison of With &amp; W/O</li> <li>Comparison of Before &amp; After</li> </ul>	Recognition of major concerned organizations	2 <sup>nd</sup> Seminar etc.	Questionnaire survey
	(011) What factors influenced the problems occurring in the project implementation process and the produced effect?		Analysis by JICA mission	<ul style="list-style-type: none"> <li>+ factor: PCM, Mutual visits, etc.</li> <li>- factor: Less recognition on collaboration progress etc.</li> </ul>	PP Report & PP records	Review of the report/records

## Attachment 2-6 Five Evaluation Criteria

## [Relevance]

Evaluation Questions		Criteria & Method for Judgment	Required Data	Information Source	Data Collection
Question	Sub-question				
<b>&lt;Necessity&gt;</b>					
(11) Was the project in line with the needs of the target region and society?		Positive replies over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
(12) Was the project in line with the needs of the target group?		Positive replies over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
<b>&lt;Priority&gt;</b>					
(13) Is the project consistent with the cluster development policy of Thailand?	(13-1) Is the effect that the project aiming for in line with the national policy for cluster development of Thailand?	Consistency of National Development policy with regional development policy	National Development Policy on cluster development	<ul style="list-style-type: none"> <li>National policy</li> <li>DIP/IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of related papers</li> <li>Interview survey</li> </ul>
(14) Is the project consistent with Japan's ODA policy and JICA's plan for country-specific program implementation?	(14-1) Does the project address the focus issues for aid?	Existence of SME promotion or not	Japan's focus issues for aid	Japan's policy for aid	Ministry of Foreign Affairs (WEBSITE)
	(14-2) Does the project have relationship with JICA's plan for a country-specific program implementation?	Existence of relationship or not	SME promoting program and its positioning	JICA's plan for a country-specific program implementation	JICA (WEBSITE)
<b>&lt;Suitability as a means&gt;</b>					
(15) Was the project adequate as a strategy to produce an effect on the development issues of the target field and sector of Thailand?	(15-1) Were project approach adequately selected?	Positive replies: over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
	(16-1) Is the selection of industrial sub-sector and site of the target group appropriate?	Evaluation by JICA mission	Benefits given to CAMC	IPC9 & DIP	Interview survey
(16) Was the selection of the target group appropriate?	(16-2) Is the size of the target group adequate?	Definition of cluster	Number of CAMC	PP record and map	Review of PP record



			companies/Cover area	
(17) Were there any ripple effects beyond the target group?	Existence of ripple effects or not		Potential cluster formation	IPC9 Interview survey
(18) Were the benefits of the effect and the burden of the costs fairly distributed?	Evaluation by JICA mission		Project performance	PP record Review of PP record
(19) Did Japan have an advantage in technology?	Existence of advantage or not		<ul style="list-style-type: none"> <li>Advantage of the sector</li> <li>Experience of cluster activities</li> </ul>	In-house data Review of data

**[ Effectiveness ]**

Question	Evaluation Questions		Required Data	Information Source	Data Collection
	Question	Sub-question			
<b>&lt;Achievement of outputs&gt;</b>					
(21) Were the outputs achieved?			(As per Performance Table)	(As per Performance Table)	Review of material
<b>&lt;Achievement of project purpose&gt;</b>					
(22) Is the project purpose achieved?			(As per Performance Table)	(As per Performance Table)	Review of material
<b>&lt;Causal relationships&gt;</b>					
(23) Was the output sufficient to achieve the project purpose? Did the output contribute to the achievement of the project purpose?	(23-1) (Output 1): Did the cluster promotion organization contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
	(23-2) (Output 2): Did the capacity building of IPC9 contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
	(23-3) (Output 3): Did the training seminar contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey
	(23-4) (Output 4): Did the strengthening information function contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey

purpose?							
(23-5) (Output 5): Did the function of industry-academy-government collaboration contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey			
(23-6) (Output 6): Did the foster parent system contribute to the achievement of the project purpose?	Positive replies: Over 70%	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey			
(23-7) Are their any factors that contribute to the achievement of the project objective?	Evaluation by JICA mission	Replies of question	2 <sup>nd</sup> Seminar	Questionnaire survey			
(24) Are the important assumptions from the output to the project purpose correct also at the present point of time? Was there any influence from the important assumptions?	Evaluation of DIP's opinion	Opinion of DIP	DIP	Interview survey			
(25) What are the inhibiting and promoting factors for the achievement of the project purpose?	Existence of such factors	Views of IPC9	IPC9	Interview survey			

**[Efficiency]**

Question	Evaluation Questions		Criteria & Method for Judgment	Required Data	Information Source	Data Collection
	Question	Sub-question				
<b>&lt;Production of output&gt;</b>						
(31) Is the output production adequate?	(As per Performance Table)	Positive replies: Over 70%	(As per Performance Table)	Replies of question	(As per Performance Table) 2 <sup>nd</sup> Seminar	Review of material Questionnaire survey
<b>&lt;Causal relationships&gt;</b>						
(32) Were the activities sufficient to produce the output?	(As per Performance Table)	Positive replies: Over 70%	(As per Performance Table)	Replies of question	(As per Performance Table) 2 <sup>nd</sup> Seminar	Review of material Questionnaire survey
(33) Are the important assumptions from the activities to the output correct also at the present point of the time? Was there any influence from the important	(As per Performance Table)	Positive replies of DIP and IPC9	Opinions of DIP and IPC9	Opinions of DIP and IPC9	DIP & IPC9	Interview survey

assumptions?									
(34) Are there factors that inhibited efficiency?	<ul style="list-style-type: none"> <li>Existence of failure in output achievement</li> <li>Inputs: Evaluation of difference between planned and actual values</li> </ul>	<ul style="list-style-type: none"> <li>Data on failure in output achievement caused by insufficient inputs</li> <li>Inputs: Difference between planned and actual values</li> </ul>	PP record	Review of material					
<b>&lt;Timing&gt;</b>									
(35) Seen from the achieved output, were the quality, quantity, and timing of the input appropriate?	(35-1) Were the number of experts dispatched, their fields of expertise and the timing of the dispatch appropriate?	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-2) Were the number of coordinators, their fields of expertise and the timing of the hiring appropriate?	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-3) Were the number of lecturers, their fields of expertise and capability appropriate?	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-4) Were the types, quantity and timing of provided and purchased equipment and products?	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-5) Were the number of C/P personnel, the assignment and the capability appropriate	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-6) Was the pilot project budget an appropriate size?	<ul style="list-style-type: none"> <li>Positive replies: Over 70%</li> <li>Qualitative evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Planned and actual values</li> <li>Evaluation of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Performance table</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Review of material</li> <li>Interview survey</li> </ul>				
	(35-7) Is the skill improvement of C/P contributing to the effectiveness?	Qualitative evaluation	Evaluation of IPC9	IPC9	Interview survey				
(36) Were the activities implemented at the right time?	Comparison between planned and actual schedule	Planned and actual schedule	PP record	Review of material					

<b>&lt;Cost&gt;</b>			
(37) Were the actual costs adequate?	Comparison of budget with actual cost	Budget and actual cost	PP record Review of material
(38) Were the costs adequate compared to similar projects?	Comparison of such costs	Info. on similar projects	JICA mission Review of material

**[ Impact ]**

Question	Evaluation Questions		Criteria & Method for Judgment	Required Data	Information Source	Data Collection
	Question	Sub-question				
<b>&lt;Prospects for the achievement of the overall goal&gt;</b>						
(41) Looking at the input and output performance and at the activity status, are there prospects that the overall goal will be produced as an effect of the project?			<ul style="list-style-type: none"> <li>Evaluation of the replies</li> <li>Evaluation of the view by IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Replies of questionnaire</li> <li>View of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>
(42) Are there prospects that the achievement of the overall goal will have an impact on the development plan of Thailand?			Evaluation of the view by DIP	View of DIP	DIP	Interview survey
(43) Are there factors that inhibited the achievement of the overall goal?			Evaluation of DIP's and IPC9's view	Views of DIP and IPC9	DIP and IPC9	Interview survey with DIP/ IPC9
<b>&lt;Causal relationship&gt;</b>						
(44) Are the overall goal and the project purpose consistent?			Evaluation of the replies	Replies of questionnaire	2 <sup>nd</sup> Seminar	Questionnaire survey
(45) Are the important assumptions from the project purpose to the overall goal correct also at the present point of time? Is the possibility high that the important assumptions are true?			Evaluation of the view	View of IPC9	IPC9	Interview survey
<b>&lt;Ripple effects&gt;</b>						
(46) Were there any positive or negative impacts beside the	(46-1) Influence on the establishment of policies and on the preparation of laws, systems and standards		Existence of such regulations	Progress of cluster related laws for country-wide extension	DIP, NESDB	Interview survey

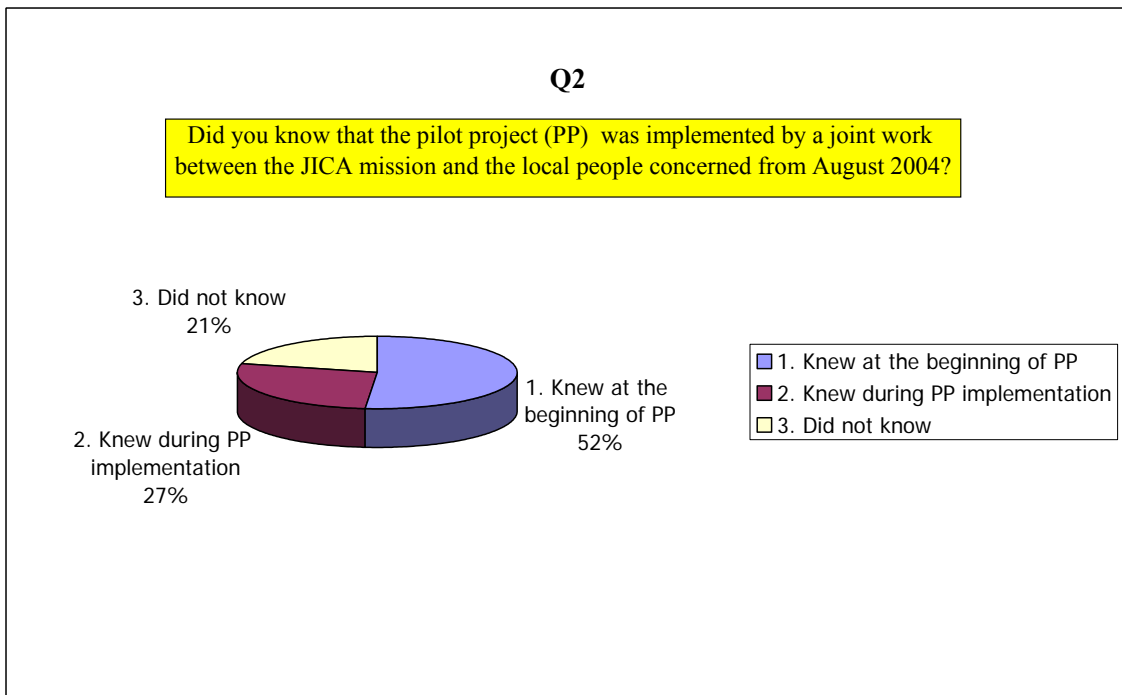
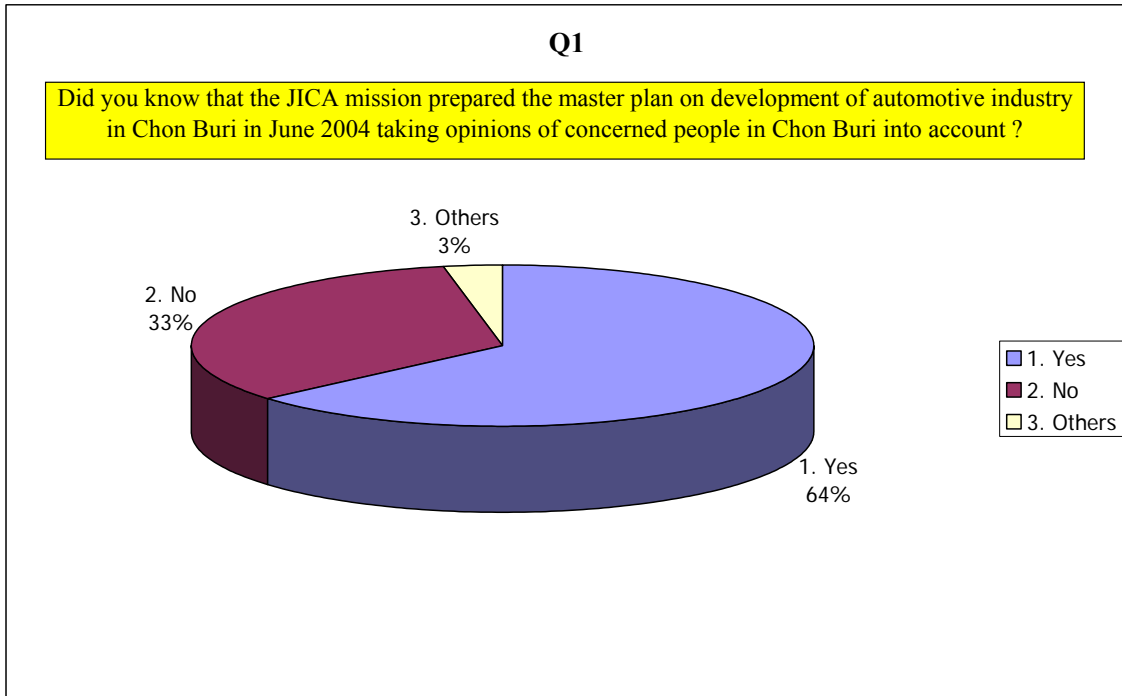
overall goal?	(46-2) Influence on the cluster activities and joint activities of regional industrial development	Comparison between BEFORE and AFTER	Situation of BEFORE and AFTER	DIP, IPC9	Interview survey
	(46-3) Acknowledgement of effectiveness of joint collaboration	Comparison between BEFORE and AFTER	Situation of BEFORE and AFTER	IPC9	Interview survey
	(46-4) Influence on the acknowledgement of CAMC	Comparison between BEFORE and AFTER	Situation of BEFORE and AFTER	IPC9	Interview survey
	(47) Are there any other negative influences?	Existence of negative influences	Situation of BEFORE and AFTER	IPC9	Interview survey

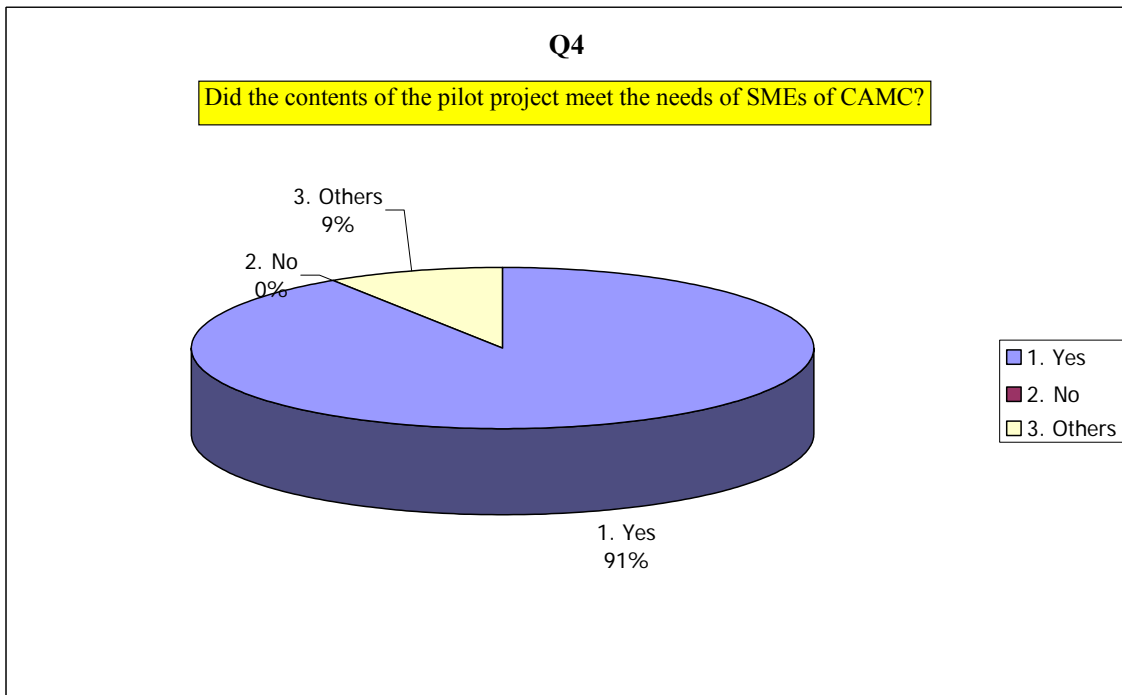
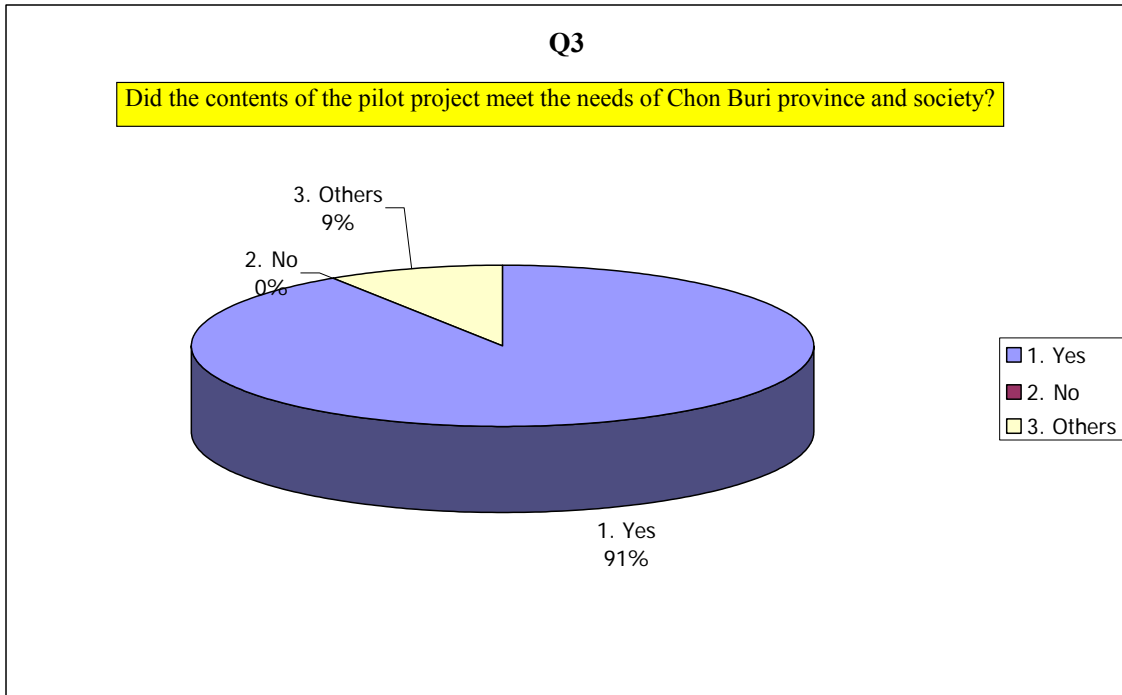
**[Sustainability]**

Question	Evaluation Questions		Criteria & Method for Judgment	Required Data	Information Source	Data Collection
	Question	Sub-question				
<b>&lt;Aspects of policy and system&gt;</b>						
(51) Will policy aid continue also after the cooperation is finished?			Prospects of assistance	National plan	DIP, NESDB	Interview survey
(52) Are the relevant regulations and legal systems prepared? Are there plans for their preparation?			Prospects of establishment of laws and regulations	Related laws and regulations	DIP, NESDB	Interview survey
(53) Will there be reliable efforts to aid their spread afterwards?			Evaluation of the views	Views of DIP and IPC9	DIP, IPC9	Interview survey
<b>&lt;Aspects of Organization and financing&gt;</b>						
(54) Is there sufficient organizational capacity to implement activities to produce effects even after the cooperation has ended? (Assignment of human resources, decision-making process, etc.)			Evaluation of the replies and views	<ul style="list-style-type: none"> <li>Replies to question</li> <li>View of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>
(55) Is a sense of ownership towards the project at the implementing agencies sufficiently secured?			Evaluation of the replies and views	<ul style="list-style-type: none"> <li>Replies to question</li> <li>View of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>
(56) Is the budget secured (including operating expenses)? Are sufficient			Evaluation of the view	View of DIP	DIP	Interview survey

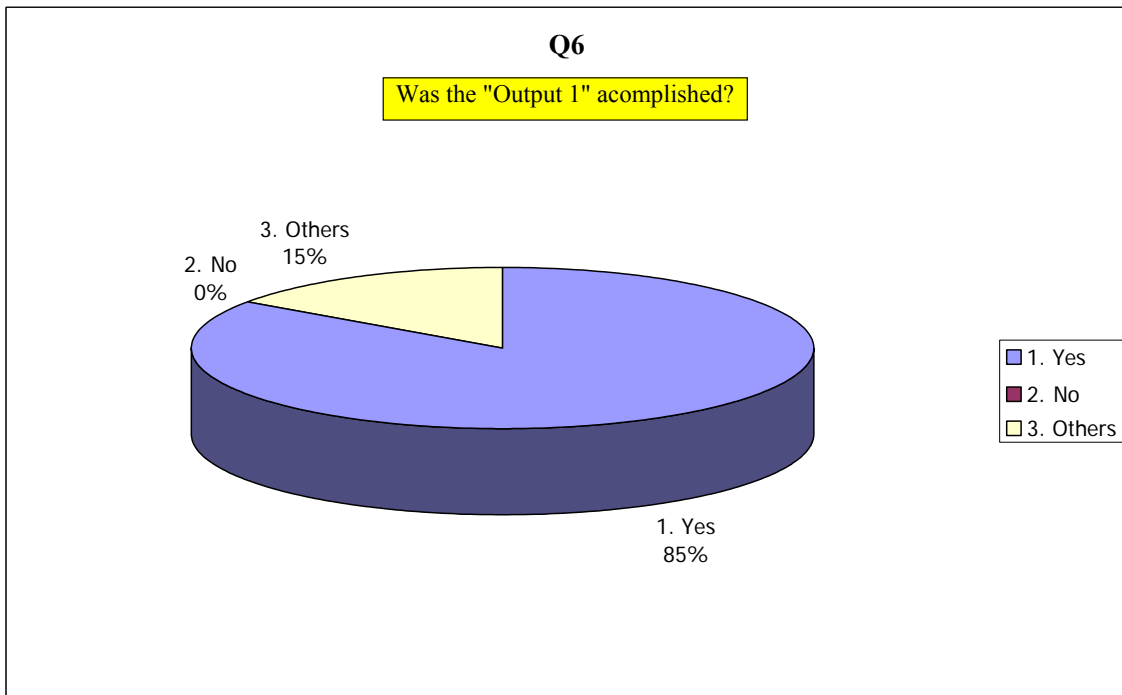
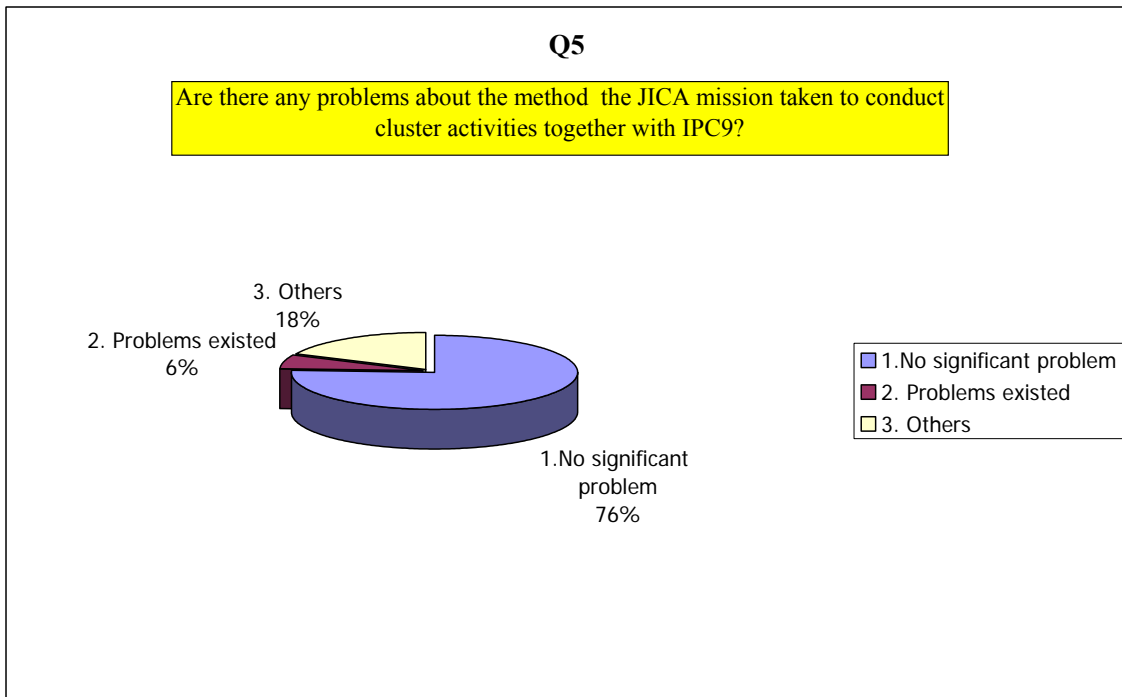
budget measures taken at the side of Thailand?					
(57) Are efforts for independent securing financial resources proceeding smoothly?	Evaluation of the replies and view	<ul style="list-style-type: none"> <li>Replies to question</li> <li>View of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2nd Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>	
<b>&lt;Aspects of technology&gt;</b>					
Are the methods of technology transfer used in the project being accepted? (Level of technology, social and conventional factors, etc.)	Evaluation of the replies and views	<ul style="list-style-type: none"> <li>Replies to question</li> <li>Views of DIP and IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2nd Seminar</li> <li>DIP, IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>	
Is equipment appropriately maintained and managed?	Evaluation of the information	Information from IPC9	IPC9	Interview survey	
Does the project contain a mechanism for its dissemination?	Evaluation of the replies and view	Views of DIP and IPC9	DIP, IPC9	Interview survey	
How high is the probability that the implementing agency can maintain the mechanism for its dissemination?	Evaluation of the replies and view	<ul style="list-style-type: none"> <li>Replies to question</li> <li>View of IPC9</li> </ul>	<ul style="list-style-type: none"> <li>2nd Seminar</li> <li>IPC9</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Interview survey</li> </ul>	
For the pilot project, is the technology transferable to other sites?	Evaluation of IPC9's view	View of IPC9	IPC9	Interview survey	
<b>&lt;Comprehensive sustainability&gt;</b>					
Considering the above aspects as a whole, is the sustainability high or low?	Results of the discussion	Opinions of 3 parties	JICA, DIP, IPC9	Discussion	

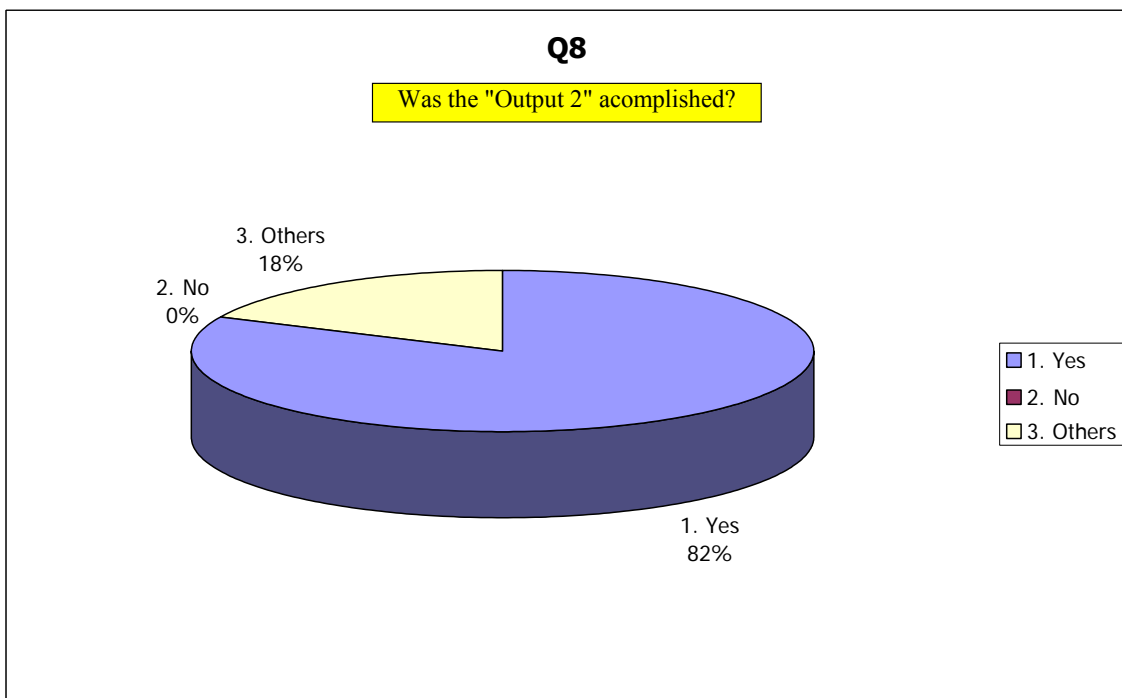
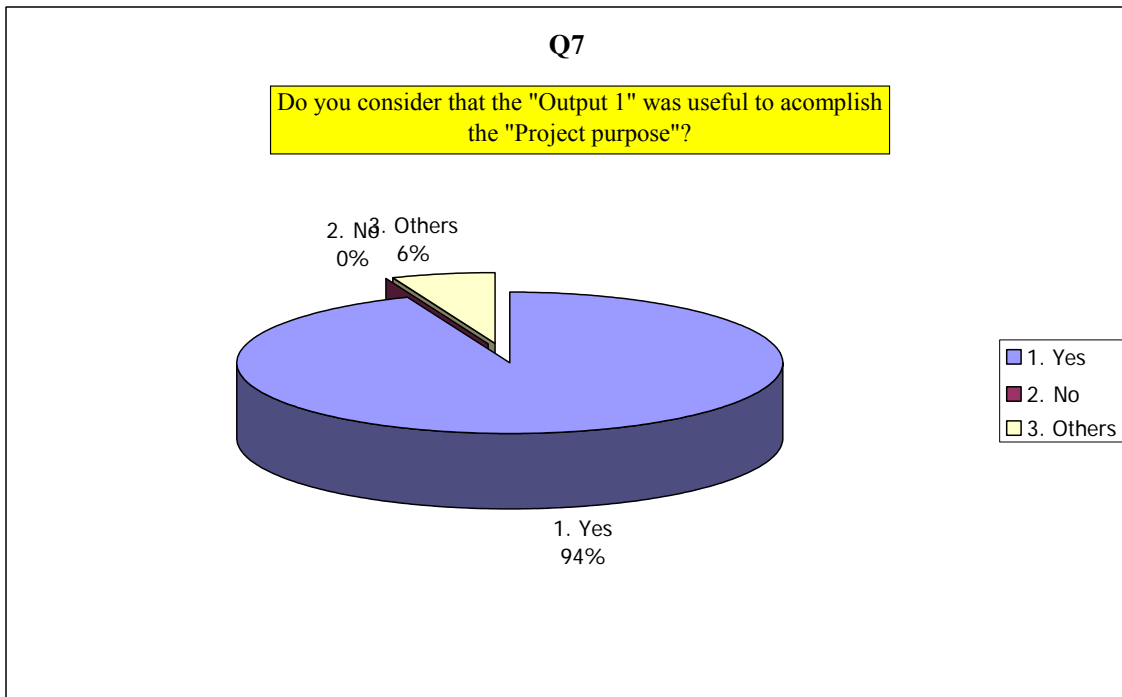
**Attachment 2-7 Results of Analysis of Questionnaire Survey at the 2<sup>nd</sup> Seminar**

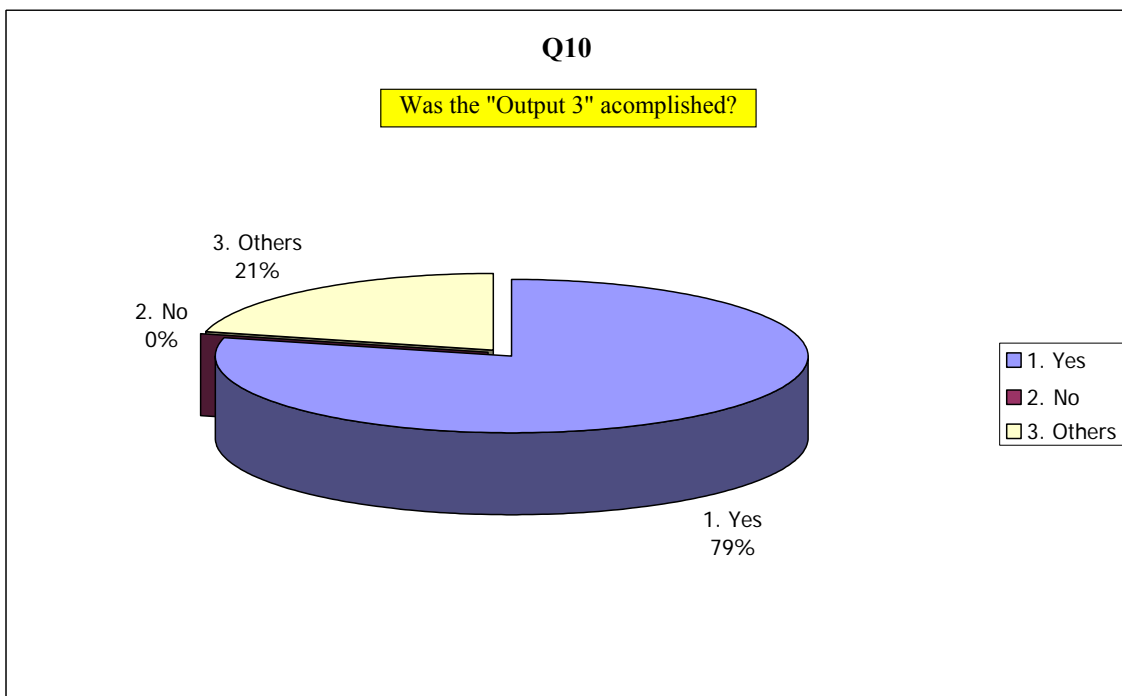
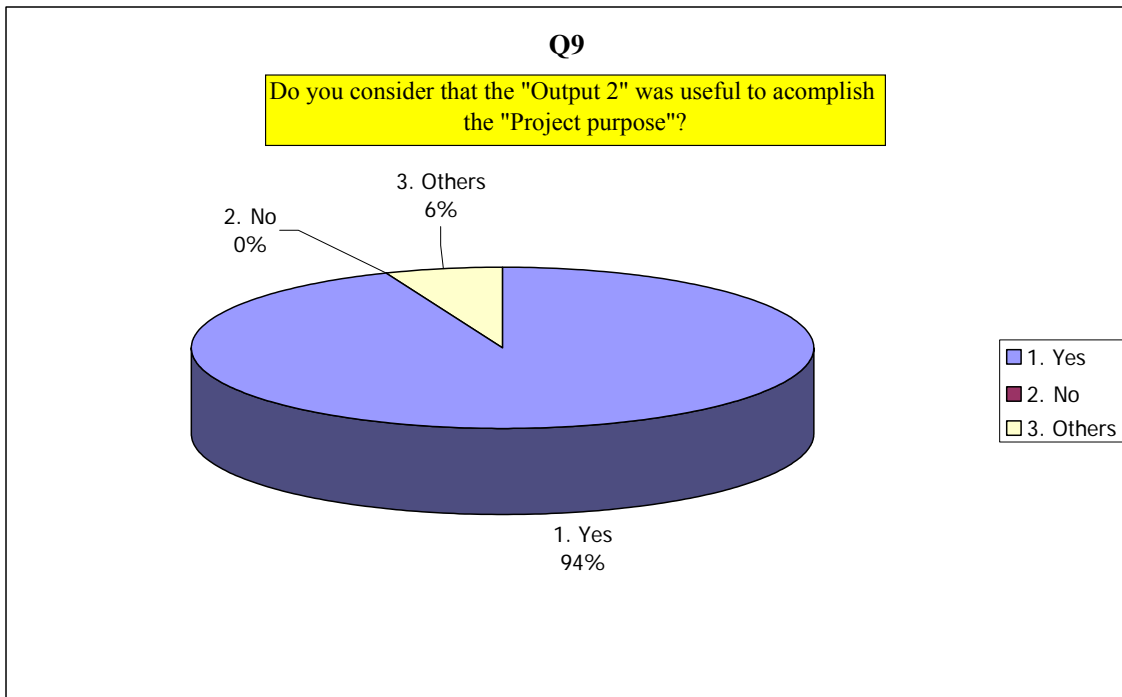


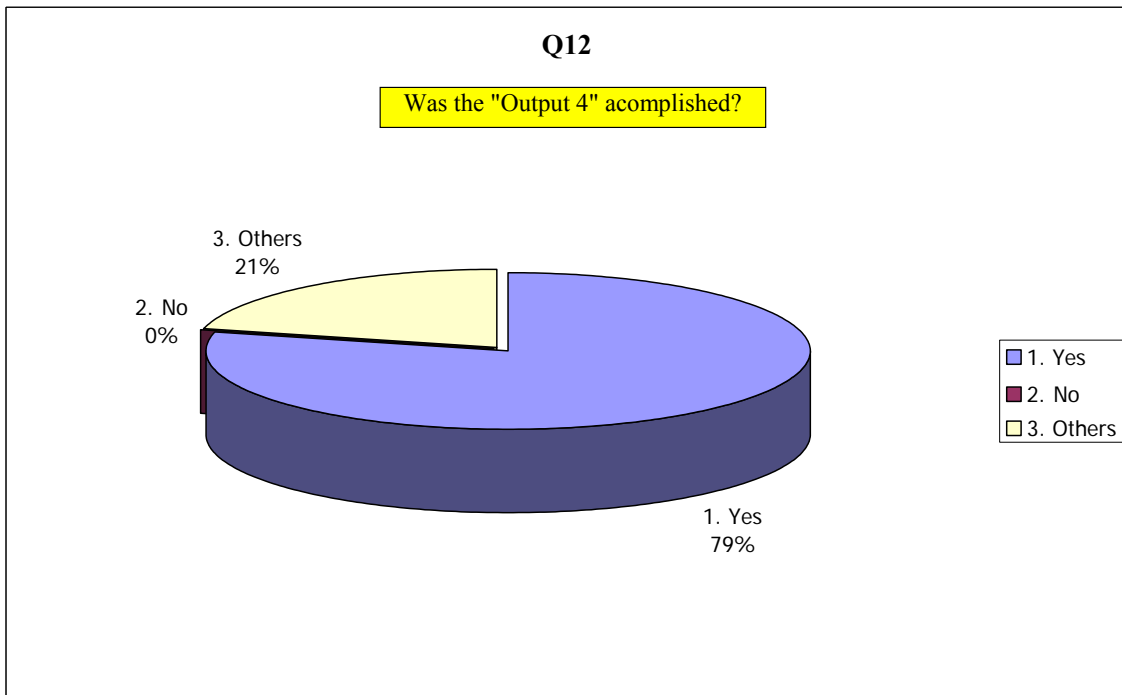
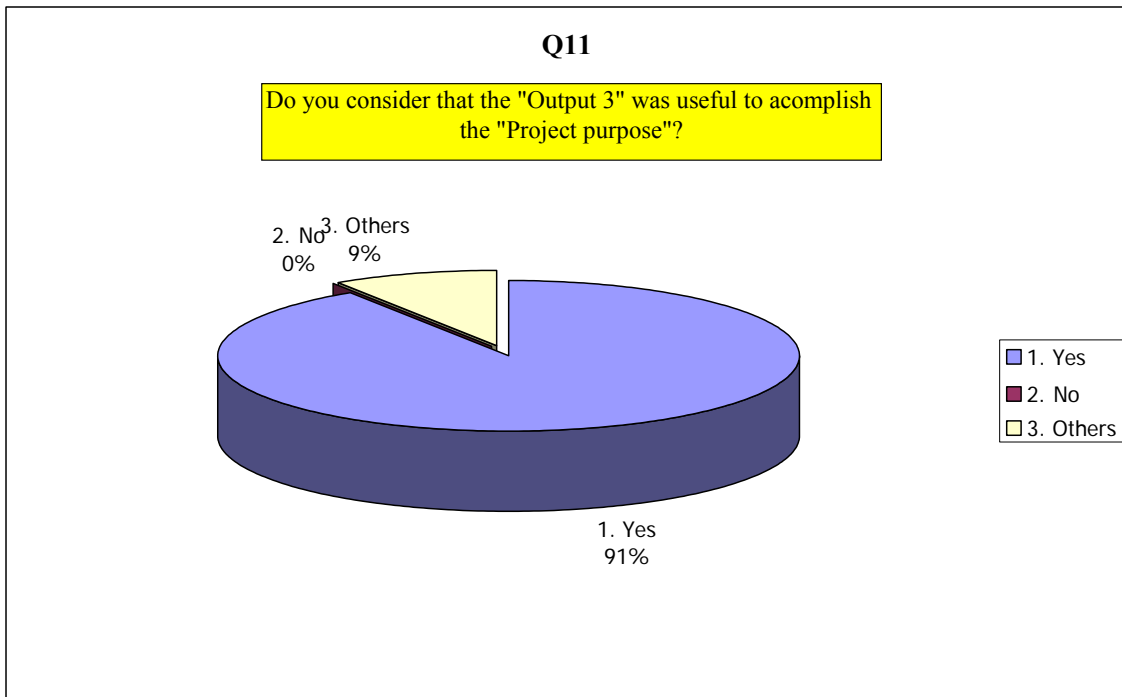


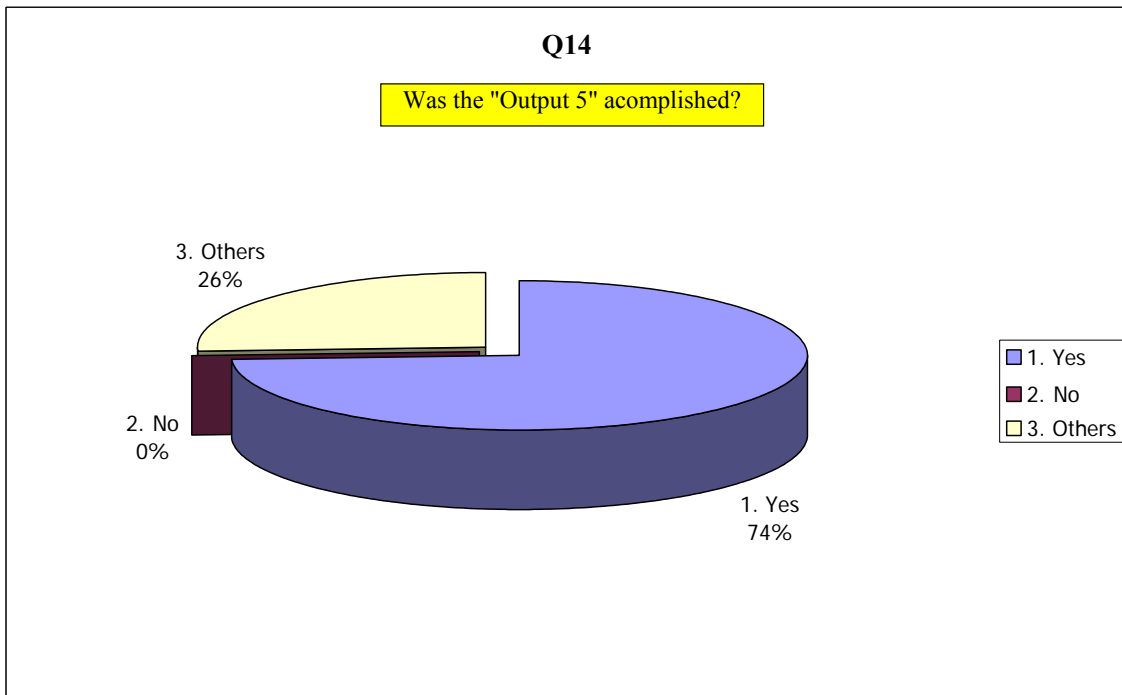
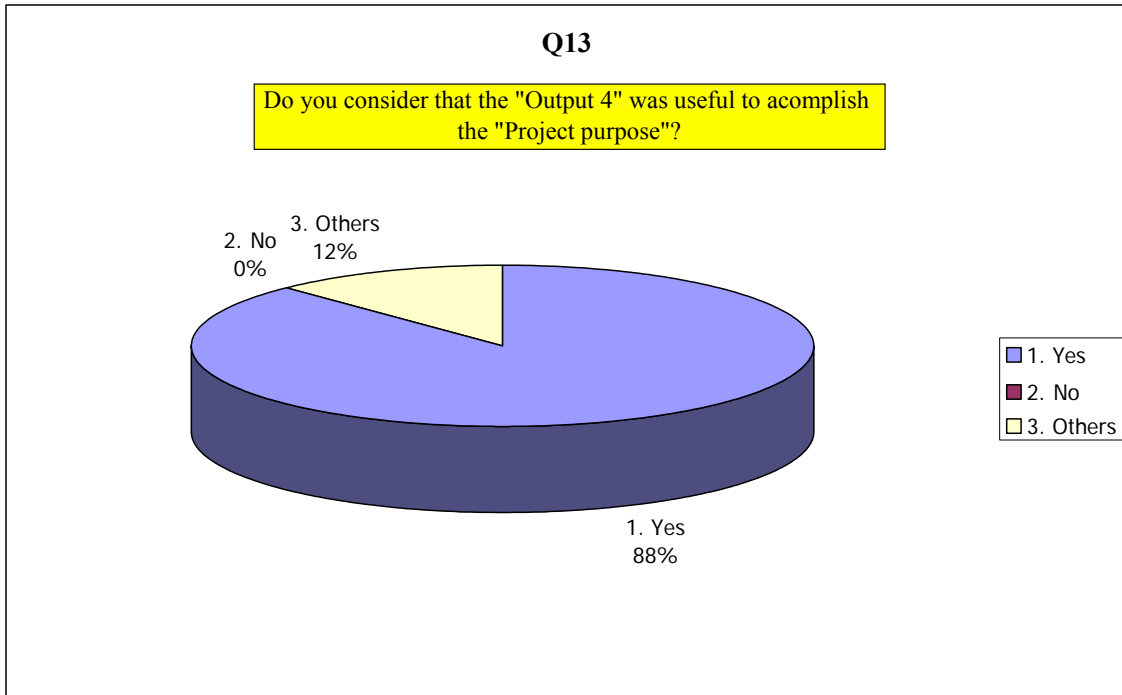


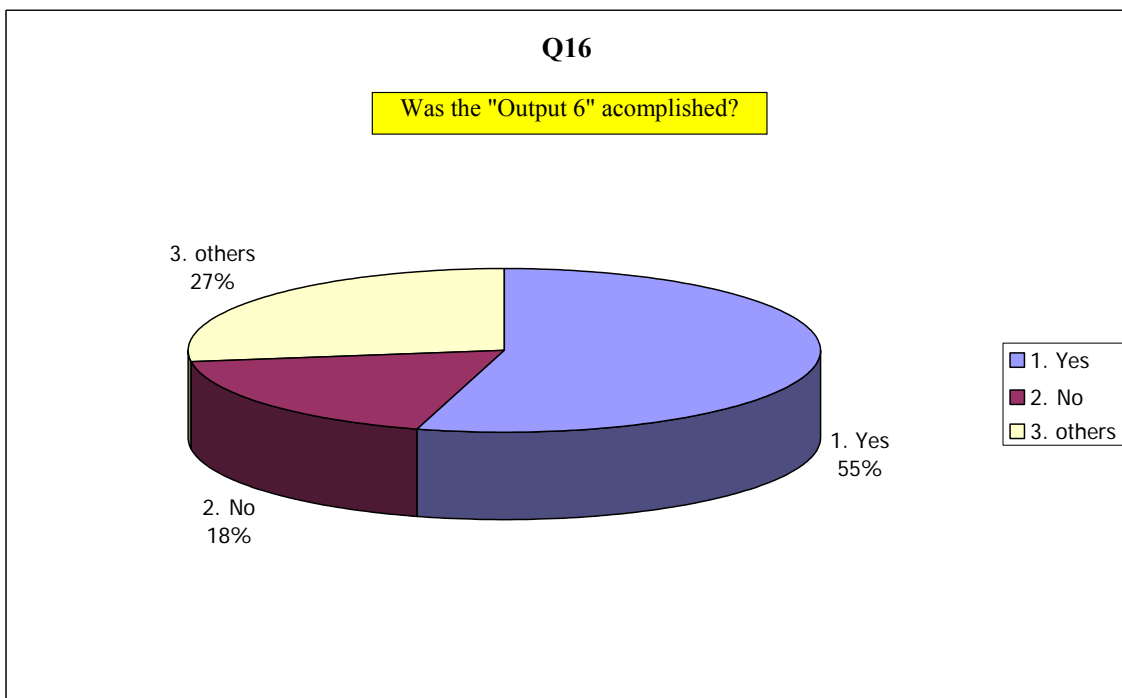
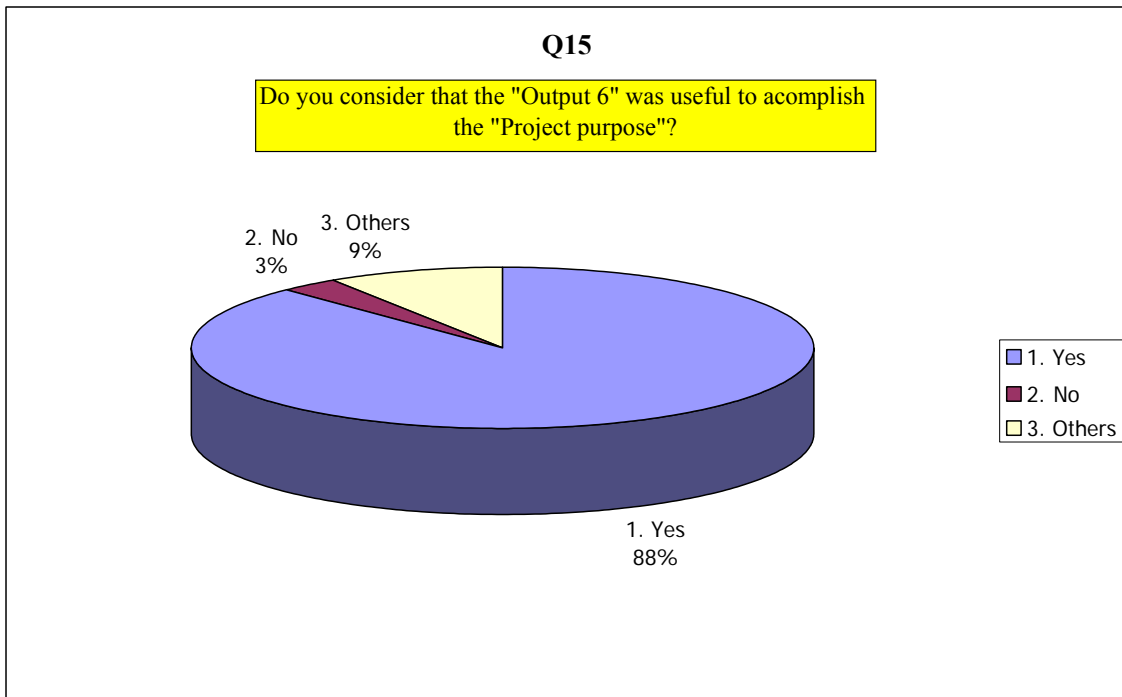


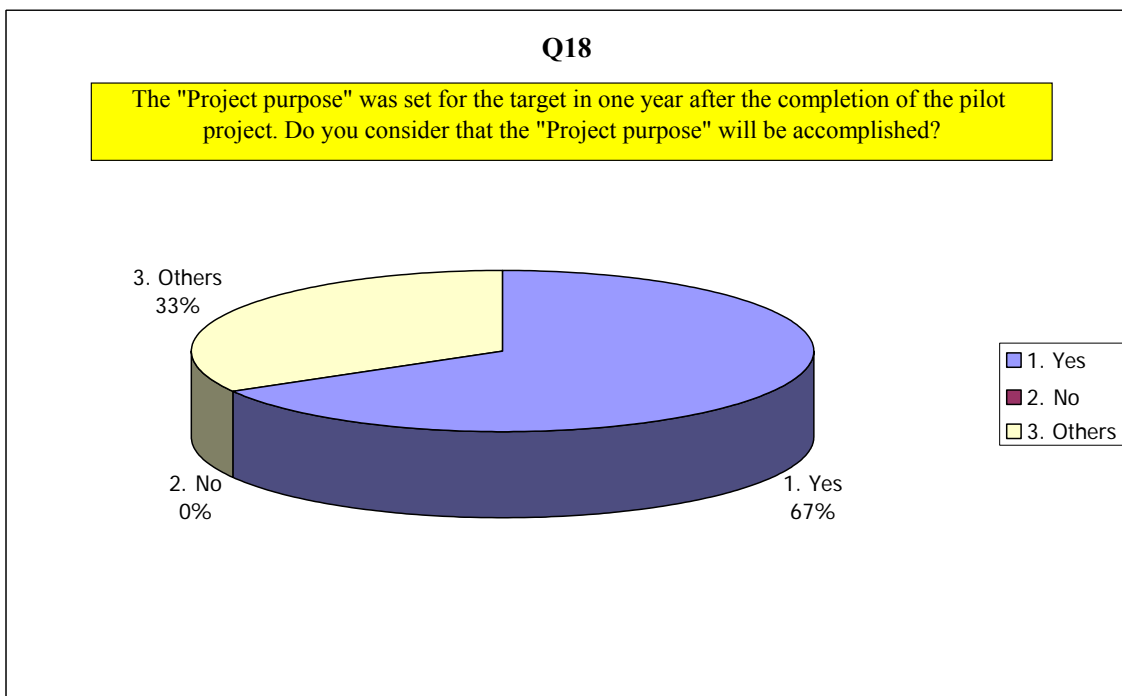
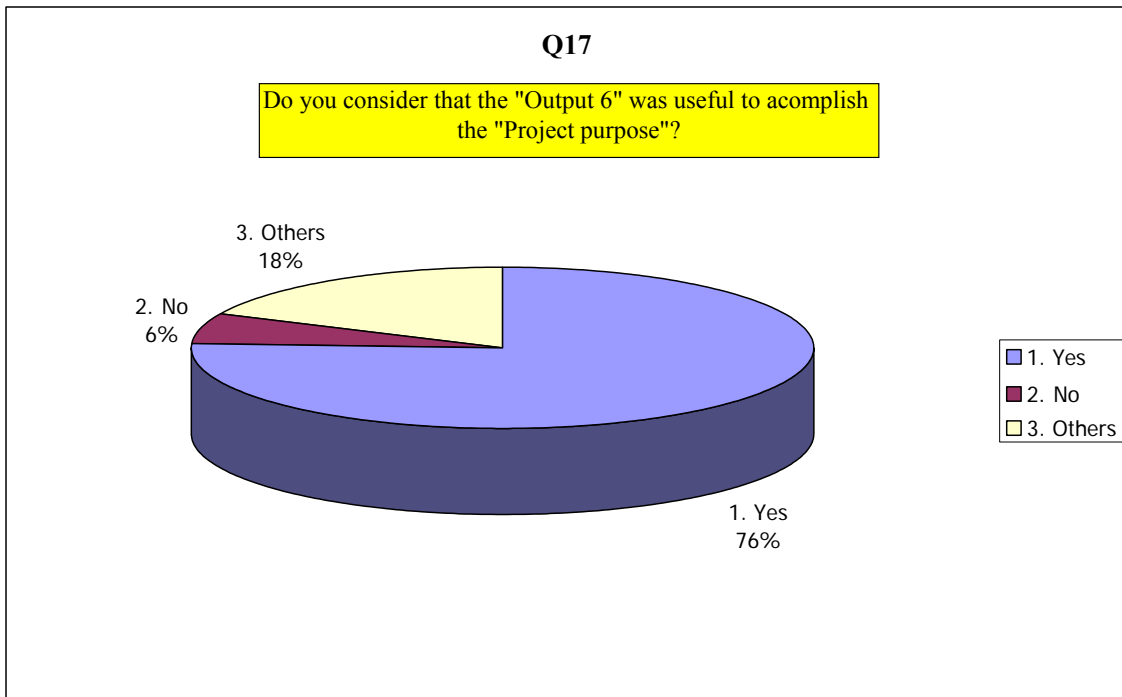


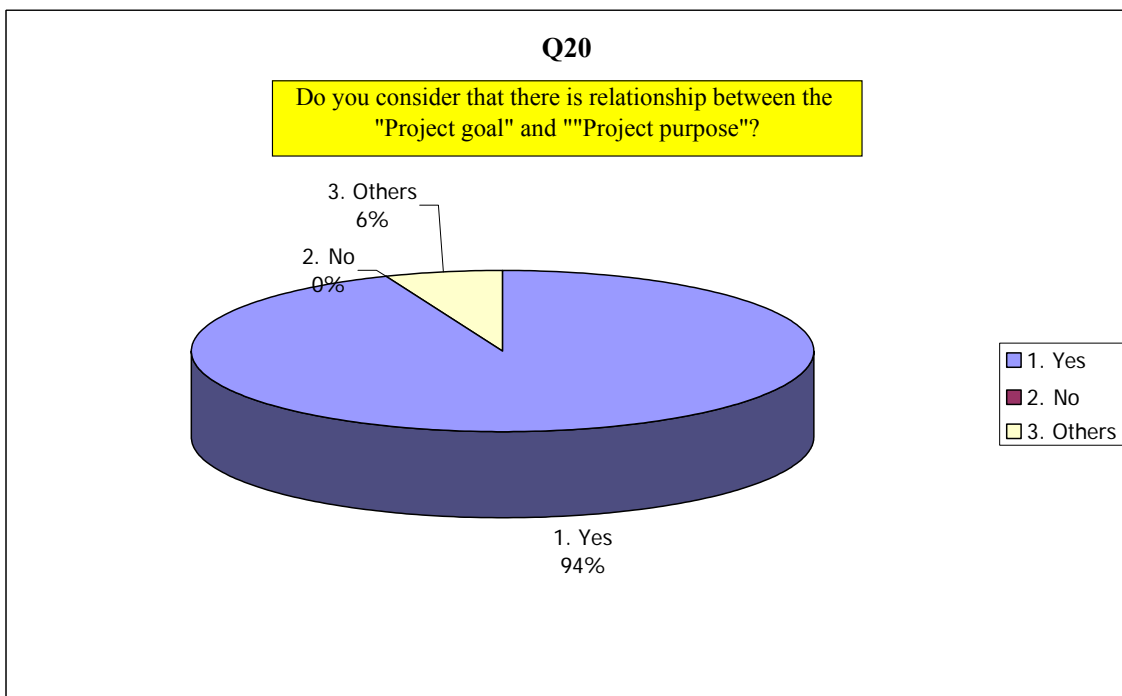
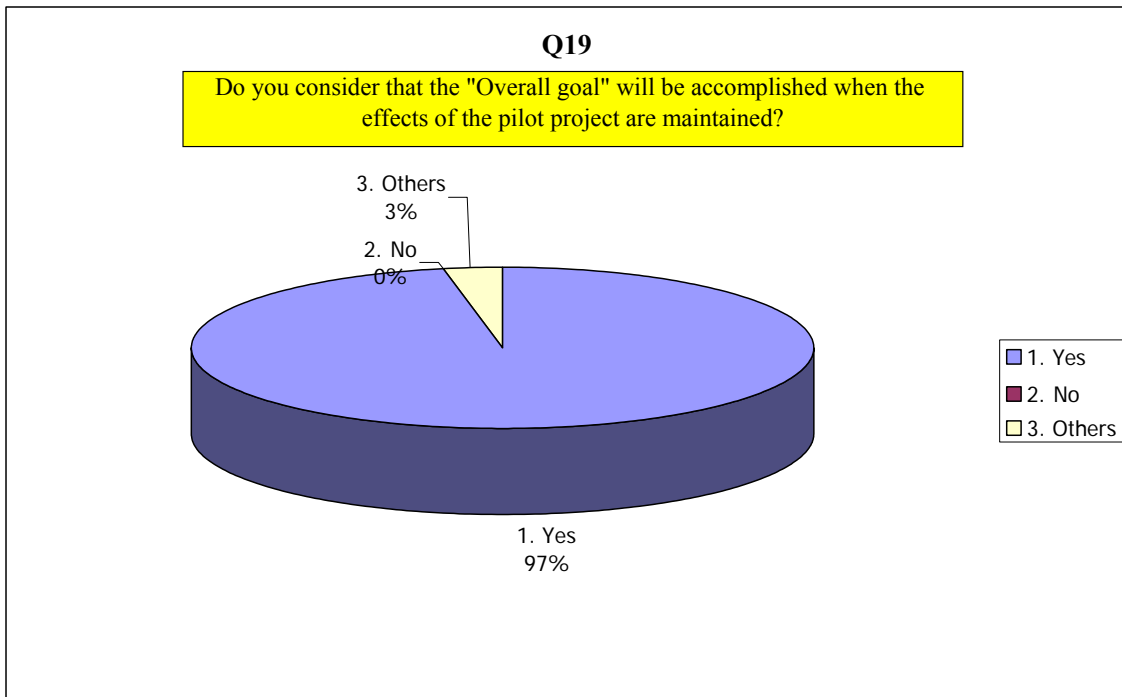




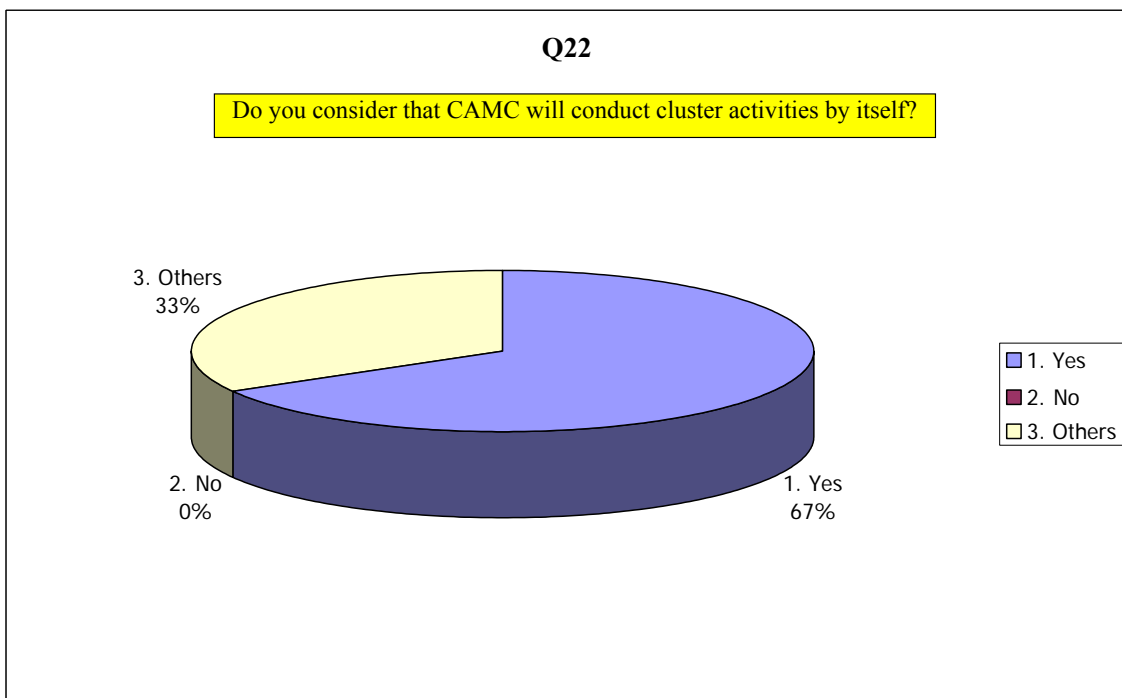
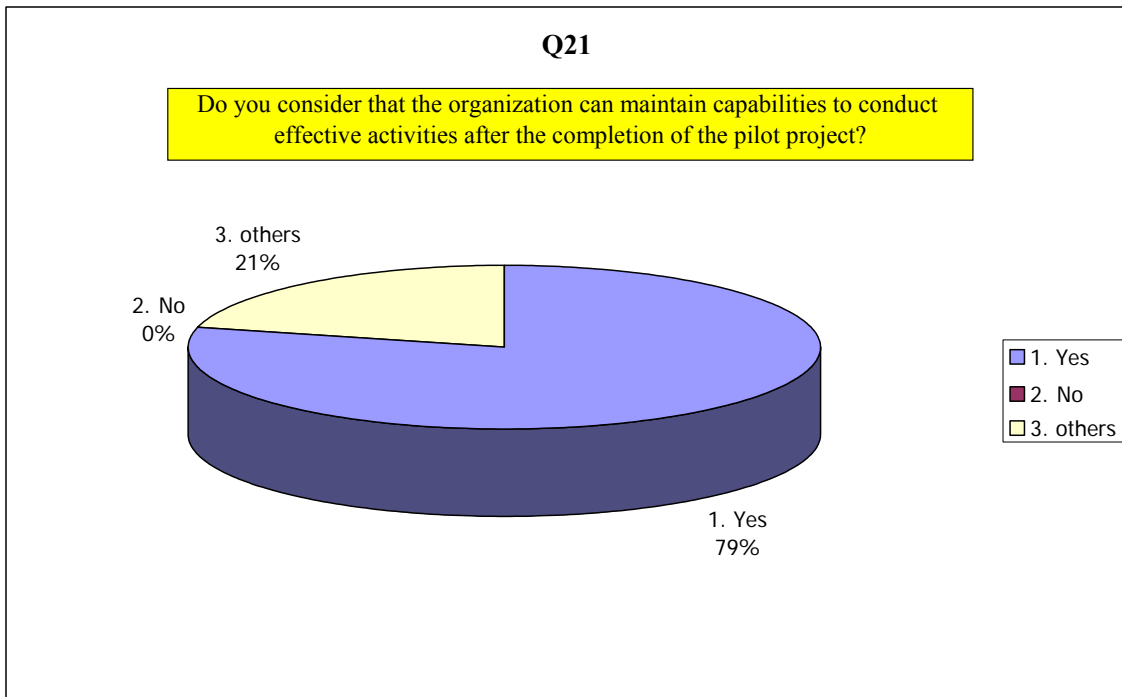




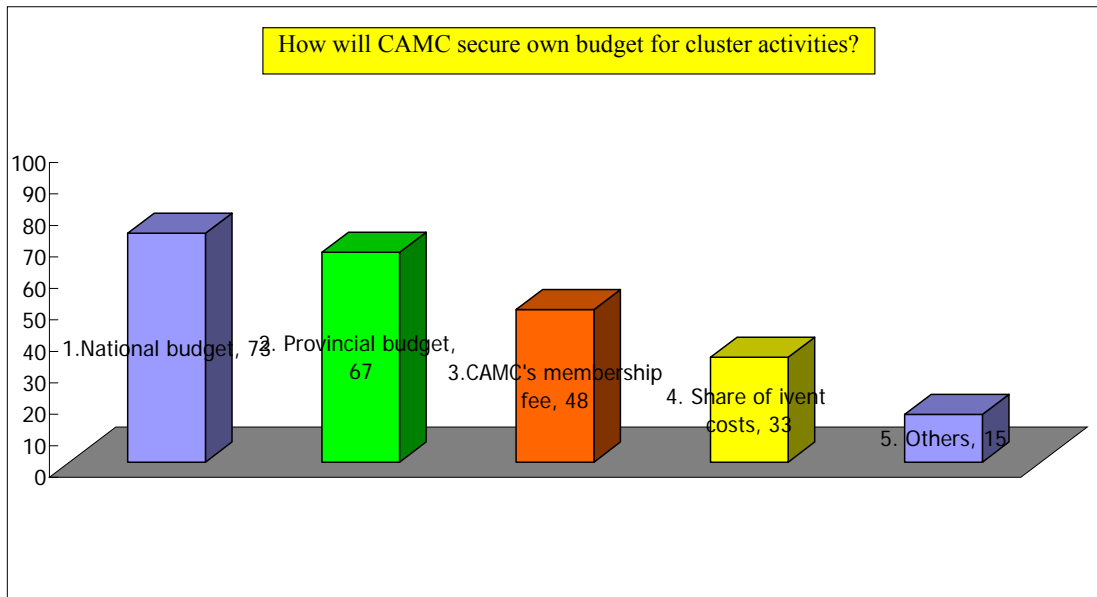








Q23



Q24

